City of Manchester.

EDUCATION COMMITTEE.

Nineteenth Annual

REPORT

OF THE

School Medical Officer

(A. BROWN RITCHIE. M.B., C.M,)

For the Year ended 31st December, 1927.

MANCHESTER:
CHAS. SEVER LTD., PRINTERS, 40, KING STREET WEST.
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STAFF.

School Medical Officer : A. BROWN RITCHIE, M.B., C.M., (Ed.).
Chief Assistant School Medical Officer : Henry Herd, M.A., M.B., Ch.B., D.P.H.

Assistant School Medical Officers :

R. A. H. Atkinson, M.B., Ch.B.
Thos. F. Bamford, M.B., Ch.B., D.P.H.
Caroline Rose Crystal, M.B., Ch.B., D.P.H.
Henry Duguid, M.D., Ch.B., D.P.H., Barrister-at-Law.
Alex. M. Dugan, M.B., Ch.B., D.P.H.
W. R. Honeyburne, M.A., M.D., D.P.H.
L. G. Leonard, M.R.C.S., L.R.C.P.
G. W. Matthews, M.R.C.S., L.R.C.P.
H. Mackenzie, M.B., Ch.B., D.P.H.
Jean M. Orkney, M.B., Ch.B.
J. E. Ransford, M.R.C.S., L.R.C.P.
Alice Rattray, M.B., Ch.B.
S. F. Reynolds, M.R.C.S., L.R.C.P.
L. W. Sparrow, M.B., Ch.B.
D. Oswald Taylor, M.D., Ch.B., B.Sc., D.P.H.
Winifred F. Wigglesworth, M.B., D.P.H.
J. G. Woolham, M.D., Ch.B., D.P.H.

Specialist Officers :

Anaesthetist ... ... *H. M. Cohen, M.D., M.R.C.S., L.R.C.P.
Operating Surgeon ... ... *H. H. P. Johnson, M.R.C.S., L.R.C.P.
Consulting Oculist ... ... *Lily Stopford, M.B., Ch.B.
Consulting Orthopædic Surgeons *E. D. Telford, F.R.C.S.; *Harry Platt, F.R.C.S.

School Dentists :

B. C. Betts, L.D.S.
Benjamin Brown, L.D.S.
A. L. Craggs, L.D.S.
G. G. Ellis, L.D.S., R.C.S.
S. B. Filiingham, L.D.S.
Jessie I. Ramsden, L.D.S.

School Nurses :

Superintendent Nurse ... ... Miss K. S. Torrop.
Nurse-in-charge of Tonsil and Adenoid Clinic ... ... Miss M. E. Blezard.

Nurse Armstrong.
,, Blackham.
,, Blears.
,, Brodrick.
,, Christian.
,, Clunan.
,, Dickinson.
,, Farley.
,, Fitzpatrick.
,, ‡Footitt.
,, Foster.
,, Fox.
,, Garry.
,, Gibbs.
,, Harrison.
,, Haugh.
,, Hetherington.
,, Holland.
,, Humphries.
Nurse Jackson.
,, F. M. Jones.
,, Leach.
,, Lewis.
,, Lowry.
,, Maguire.
,, Maitland.
,, Maxwell.
,, McGrath.
,, McIntyre.
,, Meech.
,, Moss.
,, Noden.
,, Nixon.
,, O'Bierne.
,, Parry.
,, Pierce-Jones.
,, Pryce.
Nurse Pritchard.
,, Rhodes.
,, Richings.
,, Robinson.
,, Rothera.
,, Schofield.
,, Shannon.
,, Shenton.
,, Shout.
,, Stephen.
,, Sternshine.
,, Stokes.
,, Taylor.
,, Tomlinson.
,, Waine.
,, Walton.
,, Wesley.
,, West.
,, Wright.

* *Part-time duty.* ‡ *Resignation.*

Lancasterian Day School for Crippled Children.

Superintendent Remedial Gymnast : Miss Sheila McNicol.
Remedial Gymnasts : Miss H. Heywood, Miss B. L. Ashworth.
Masseuse : Miss Edith E. Harrison.
Nurse : Miss W. Johnson.
Nurse Attendants : Miss L. Shaw, Mrs. Hughes.

CLERICAL STAFF.

Chief Clerk ... ... HARRY ROBINSON.

ARTHUR DUNKS.	FRED W. HUBERT.	ALICE WORTHINGTON.
HARRY HINSLEY.	NORMAN LEIGH.	AGNES L. EDGAR.
GEO. A. HAWLEY.	AGNES ROSCOE.	EDNA JACKSON.
GEORGE WEBB.	EMILY HOWARD.	ANNIE M. CORE.
JOHN DICKINSON.	EMMA HASLAM.	CONSTANCE WALFORD.
ARTHUR CHANDLER.	VICTORIA M. PARLBY.	ETHEL DURRANT.
THOMAS BROWN.	ALICE BROWN.	ELIZABETH HALLARD.
KENNETH BENSON.	DORIS M. BURTON.	*JOHN N. HAIGH.
HAROLD V. LEWIS.	KATHLEEN MCEWEN.	

Clinic Attendants :

JOHN BROUGHTON.	JCHN KIRBY.
E. CUNNINGHAM.	MRS. CAMPBELL.
FRANK CHECKLEY.	JOHN HUDSON.

Assistant at Special Skin Clinic, Stretford Road :

Miss MORRIS.

* *Deceased.*

Residential Schools :

Alice Briggs' or Bank Hall, for Delicate Girls...	Heaton Mersey, near Stockport.
Mobberley Open-Air School for Boys	Mobberley, Cheshire.
Summerseat Open-Air School for Pre-Tubercular Girls.	Summerseat, near Bury, Lancashire.
Soss Moss School for Epileptic Children	Chelford, Cheshire.
Swinton House and Parkfield School for Crippled Children	Swinton, near Manchester.

Non-Residential (Day Special) :

Lancasterian School for Crippled Children ...	Goulden Street, Oldham Road, Manchester.

School Clinics :

Central Clinic	Education Offices, Deansgate.
Stretford Road	263, Stretford Road, Hulme
New Islington	New Islington, Ancoats, Manchester.
Lancasterian	Goulden Street, Oldham Road, Manchester.
Gorton	112, Gorton Lane, Manchester.
Shakespeare Street	69, Shakespeare Street, Chorlton-upon-Medlock, Manchester.
Openshaw	1460, Ashton Old Road, Higher Openshaw.
Cheetham	Corner of Smedley Street and Cheetham Hill Road,

Nineteenth Annual Report of the School Medical Officer.

1927.

PREFACE.

The SCHOOL MEDICAL OFFICER has pleasure in submitting his Nineteenth Annual Report on the work of the School Medical Department, and begs to tender his thanks to all officials and voluntary workers who have assisted in the Department's endeavours. The field of operations continues to widen and provide more sources of treatment for the ailing child. The developments during the year 1927 include the opening of a new School Clinic in the Cheetham District, the inauguration of an Orthopædic Scheme, and the provision of treatment by artificial sunlight at two centres.

The progress with the programme for future development, as the details are accomplished, is gradually improving the general service and eliminating the difficulties and drawbacks due to expansion of Clinic and other work during a period when it was not possible to build, or to obtain suitable buildings for clinics.

A. BROWN RITCHIE,
School Medical Officer.

INTRODUCTION.

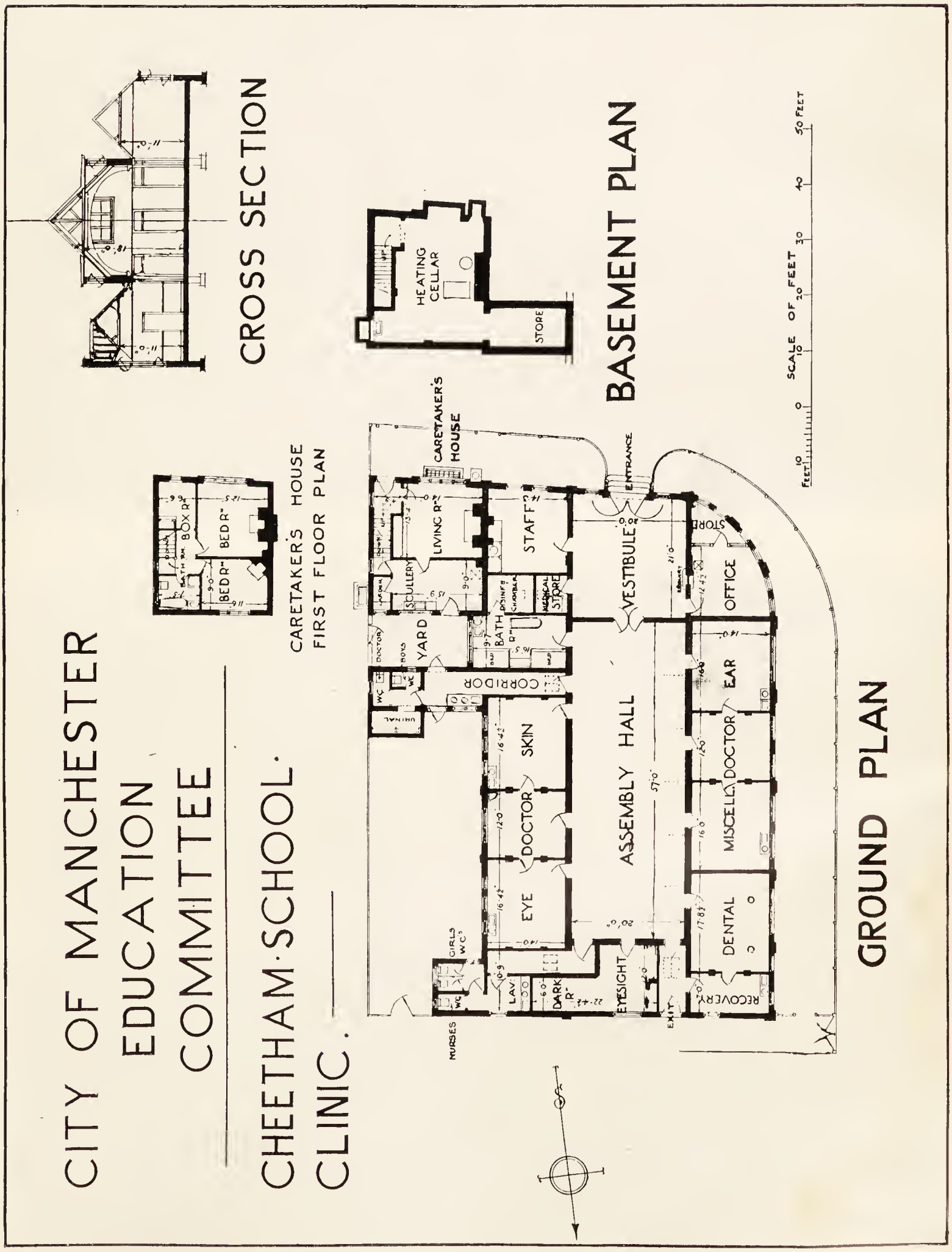
The School Medical Service, like many others of the Public Services, has come to be an accepted part of communal life.

The first few years after the institution of the Service in the year 1909, were devoted to ascertaining the state of health of the school population and its needs for treatment. The first school clinic was opened in the year 1915 and two other clinics were instituted before the end of the Great War. When the re-organisation of the School Medical Service took place early in the year 1919, it was found that all the original staff for the purposes of school medical inspection was required for the work of treatment, and additional staff for school inspection was necessary. Since that time, the work of treatment has extended, and owing to the development of the educational system in the City the amount of school inspection has increased. In addition to the treatment of minor ailments, defective vision and dental caries there is (1) a department for the operative treatment of adenoids and enlarged tonsils, (2) treatment by zinc ionisation for ear disease, (3) treatment for goitre, (4) X-Ray treatment for ringworm and other skin affections, (5) remedial exercises for minor deformities, (6) minor orthopædic work in connection with No. 5, (7) special treatment of children suffering from scabies, (8) the voluntary cleansing of children infested with vermin of the head, (9) treatment of children by Ultra Violet Rays, and (10) an orthopædic clinic has been commenced under the direction of two specialist surgeons.

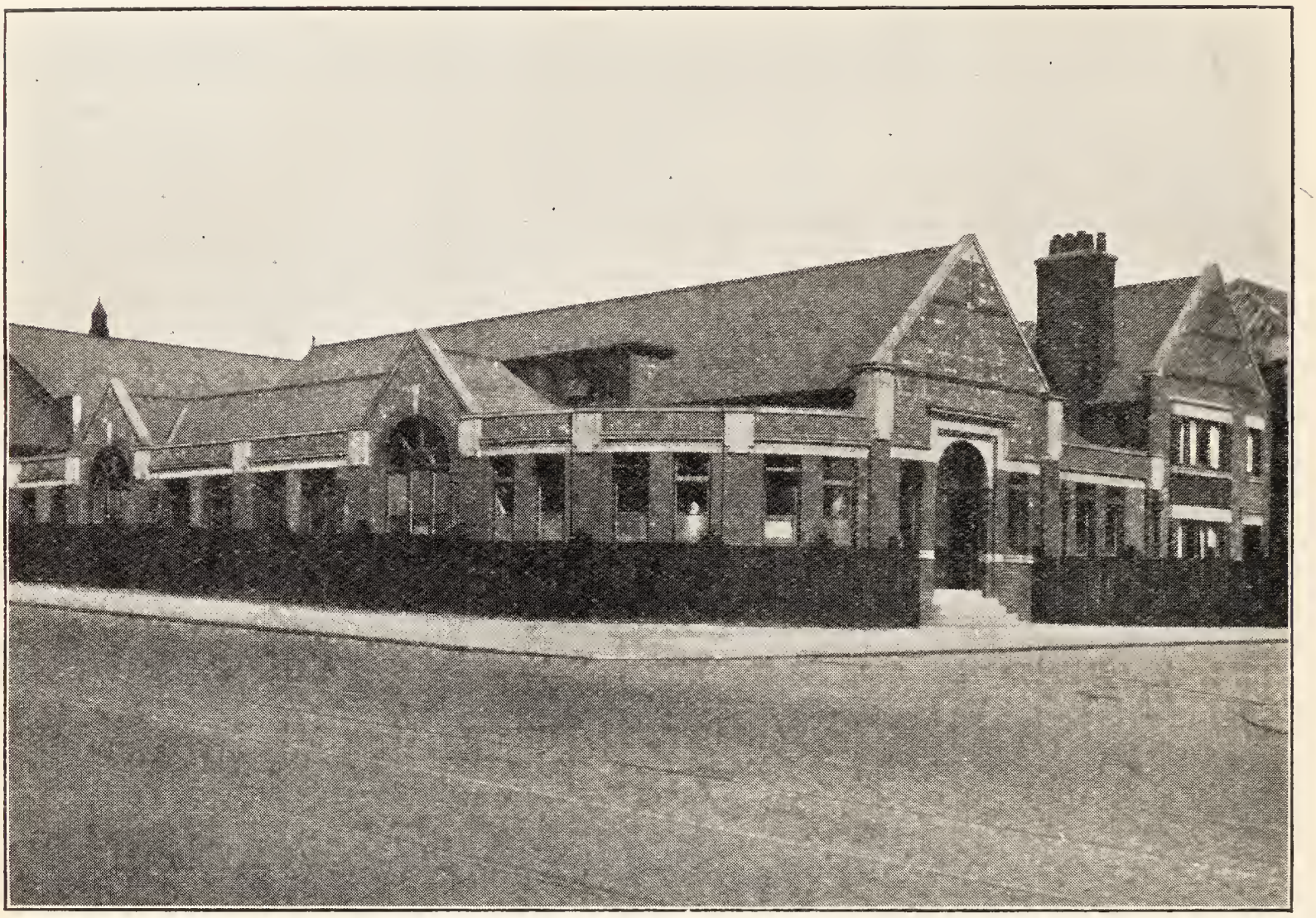
Medical Inspection.

The growth in the numbers of students attending the places of higher education is marked. In the year 1920 there were approximately 4,700 students in attendance at the Secondary and Central Schools in the City, and the numbers of such students had risen to over 9,100 in the year 1927. If these children had remained in the elementary schools each would have received one routine medical examination and that in the year in which their 13th birthday occurred, but having entered a Secondary or Central School, each student is examined during the year in which admission to the school is obtained, again during the year in which their 12th birthday occurs and a third time during the year in which their 15th birthday occurs. These students, therefore, are responsible for an increase of about 5,000 medical examinations per year. The great increase is mainly due to students attending the Central Schools, the numbers in these schools having risen from 2,700 in the year 1920 to 6,300 in the year under report.

The erection of a new School Clinic in Cheetham Hill marks a distinct advance in the treatment of school children. The building is of the bungalow type, with a large entrance hall where patients are registered, and a very large waiting hall facilitates the segregation of the children according to their various complaints. The treatment rooms are arranged down the sides of the waiting hall. The sketch plan given shows the whole arrangement.



The following are exterior and interior photographs of the building.



REPORT.

CO-ORDINATION.

The School Medical Officer continues to carry on the work of his department in close co-ordination with the other departments of the Committee and the Corporation, as well as with all voluntary associations which can be of assistance to the school child.

During the outbreak of smallpox in the City, every requirement and suggestion of the Medical Officer of Health was carried out. The children in the schools affected by any case of smallpox were inspected by an Assistant School Medical Officer daily until the incubation period was passed. Lists of absentees were supplied daily in order that the homes of absent scholars may be visited by the officials of the Public Health Department, and any contacts with cases attending school were rigorously excluded and the teachers specially written and visited.

At the commencement of an outbreak of measles, the Medical Officer of Health notified the School Medical Officer of the occurrence of the first case in a school. The Principal Teacher was immediately written and information supplied indicating the initial symptoms of the disease and time of incubation with an instruction to exclude all children showing suspicious symptoms on or about the date when the subsequent cases were expected to occur. Further reference to the work with regard to infectious diseases in schools will be found under that heading.

ELEMENTARY SCHOOLS.

School Hygiene.

The closest attention still continues to be paid to the general sanitary conditions of the schools and to the heating and ventilation.

At the close of the routine medical inspection in a department, the Assistant School Medical Officer conducting the work makes a general inspection of the school buildings and sanitary arrangements, etc., and reports to the School Medical Officer. Any defects requiring attention are reported to the Director of Education, when steps are taken to remedy the defects or to bring them to the notice of those responsible.

Electric Lighting.—In nine instances electric light has been installed in existing school buildings, while new installations of electric lighting are in progress in two more. In eight schools the electric lighting arrangements have been improved, and in one school

an improvement is in progress of being made. In five new schools electric lighting has been installed, and in five others the work is in progress. In one instance, an improvement is taking place in the present installation in a new school. It is to be noted that the distribution of the light is now carried out so as to give a much more satisfactory result than was possible with the old gas fittings.

Medical Inspection.

The work of medical inspection has been carried out as in previous years. Owing to structural alterations it was not possible to undertake the yearly medical inspections in one or two of the Elementary Schools as, unfortunately, the time arranged for the medical inspection coincided with the alterations to the school buildings.

There were approximately 400 more students medically inspected in the Secondary Schools during the year 1927 compared with the previous year, while in the Day Continuation and Junior Technical Schools there was an increase of 580 examinations during the same period. The numbers examined in the Nursery Classes also show an increase of about 360. The increase in the number of students attending the Central Schools has resulted in increased medical inspection in these schools also. The total amount of additional medical inspection in schools other than the Elementary Schools, and including the Nursery Classes, is equal to over 2,000 children for the year under report.

The Board's schedule has been followed for the purpose of medical inspection, and the more detailed form has been used for students over the age of 14 years. All the girls in the Central, Secondary and Day Continuation and Junior Technical Schools have been examined by a lady Assistant School Medical Officer.

The number of special inspections and the number of re-inspections also show an increase as compared with the year 1926, and the final total of all medical inspection work shows an increase of about 10,000 examinations.

During the year 1927, practically all the medical inspection work requiring to be done was undertaken, the exceptions being two Public Elementary Schools, the Girls' Department at a Day Continuation School, and the whole of the Junior Department at the High School of Commerce.

These will be undertaken early in the coming year.

Findings of Medical Inspection.

Uncleanliness.—As stated in last year's report, no statistical information is kept as to the numbers of children found at the routine

inspections to require treatment on account of uncleanliness. The whole of the schools in the City undergo three general inspections per year by the School Nurses, and all cases requiring treatment are followed up. A report is made on the nurse's form of any case found unsatisfactory at a routine medical inspection, and in consequence it is more urgently followed up.

Minor Ailments.—The number of cases of ringworm of the scalp found during routine medical inspection was 48 as compared with 25 in the year 1926, while the number of cases of ringworm other than the scalp was about the same as last year. The number of cases of ringworm found at the routine inspections or submitted as "specials" either at the school or at the School Clinics was 136 less than those found or submitted in the year 1926. The special report on the treatment of ringworm will be found on page 25.

Scabies.—The incidence of scabies has shown a tendency to rise in the year 1927. There were 270 cases diagnosed as compared with 222 in the year 1926.

Other Skin Diseases.—The number of cases found at the routine inspections to be suffering from other skin diseases was slightly greater than the number found during the previous year.

Eye Diseases.—The number of cases of eye disease found at the routine medical inspections is comparatively small and in number is about the same as that found during the year 1926. The number of "specials," however, is much higher owing mainly to an outbreak of conjunctivitis in a tenement dwelling. These cases were sent direct to a School Clinic for diagnosis and treatment. Reference to this outbreak will be found in the report on page 29.

Squint.—The number of cases of squint found is rather less in the aggregate than in the previous year though the number found to require treatment is approximately the same.

Adenoids and Enlarged Tonsils.—The number of cases of adenoids and enlarged tonsils is slightly higher than in the previous year, but as the numbers are spread between the conditions singly and collectively, the actual difference is very small. The number of cases referred for treatment either as a result of routine inspection or as "specials" is almost the same as in the previous year.

Ear Disease and Defective Hearing.—Here again the number of cases coming under this heading and found to require treatment as a result of routine medical inspection varies very little from previous years. The number of "specials," however, shows an increase over the previous year.

Tuberculosis.—The number of cases of phthisis diagnosed as "definite" and found as a result of routine inspection is 11 as against 12 in the year 1926. Suspected cases, however, number 59 as against 51 in the previous year. The numbers of non-pulmonary cases remain about the same as in previous years.

Dental Defects.—No statistics are kept of the amount of dental defect found at the routine medical inspections. There are now 6 Dental Clinics with a full-time Dental Officer attached to each, and they are responsible for yearly dental examination of about 7,000 children each. Only one-third of the school population is, however, under dental supervision. Any cases found at the routine medical inspection which require urgent treatment are referred to a School Clinic if the school is within the dental area, the others being advised to seek treatment either by the Private Practitioner or Dental Hospital.

Crippling Defects.—There were 507 cases of deformity found at the routine school inspections during the year as against 502 in the previous year.

Taken as a whole the findings of medical inspections did not vary very much from previous years, and there has been no increase in any of the different classifications which calls for special investigation.

Statistical information can be misleading as to degree of severity of the different defects. As the field of treatment widens, *i.e.*, by remedial exercises and artificial sunlight and day open-air schools, it is only to be expected that defects will be recorded for treatment which, because of there being no facilities which would be of service to the child, were previously set down for observation only.

It is well that this should be noted in view of possible increases in the numbers of cases of diseases or defects which may be recorded in the future.

Infectious Diseases.

The supervision of infectious disease in the schools during 1927 called for the part-time services during the first part of the year of two Assistant Medical Officers and one Nurse. In the latter part of the year owing to an increase of epidemic sickness, it was found necessary to augment this staff by an additional Medical Officer and Nurse, who gave part-time assistance.

Measles, as was the case last year, has been the most prevalent disease, a total of 6,511 cases being reported—an increase of 1,053 on the figures of the previous year.

Whooping Cough was responsible for 1,234 cases, 27 less than in 1926.

Scarlet Fever has been prevalent in certain districts, but not as a widespread epidemic. A total of 1,095 cases was notified, which shows a diminution of 255 on the aggregate for the preceding year.

Diphtheria was confined to local epidemics. 679 cases were reported as against the 634 of last year.

Chickenpox has throughout the whole City been very prevalent. A total of 3,285 cases was reported during the 12 months.

Smallpox, of which disease cases had occurred in various parts of the City during the year, appeared in two of the schools in December. Two children were notified as suffering from the disease, and, as several other schools were affected by contacts, daily examinations of all children attending these schools were necessary. Fortunately there was no further increase of the disease as far as the schools were concerned.

(Signed) R. A. H. ATKINSON.

Following Up.

(*a*) Cases of Disease or Defect.

The types of cases which are followed up by the School Nurses in order that the School Medical Officer may be assured that treatment has been obtained are :—

(*a*) Those for whom there is no treatment at the School Clinic.
(*b*) Those who can be treated at School Clinic but whose parents prefer to obtain treatment elsewhere, and,
(*c*) Those who commence treatment at a School Clinic and cease to attend before the treatment has been completed.

All cases are followed up and reported upon periodically until the child is discharged by the doctor who has been treating it. On the occasion of each enquiry the Nurse makes a report on the visiting form, and this form is submitted to the Assistant School Medical Officer whenever he is present in the school a given child attends. This provides the Medical Officer with a history of the case from the time of inspection to that of re-inspection. If the Assistant Medical Officer considers the child cured, both the Nurse's form and the child's medical schedule are noted and the case is discharged. If the Medical Officer is not satisfied with the condition of the child at the time of re-inspection the parents are advised as to procedure and the Nurse continues to follow up and report. As a rule a further re-inspection takes place in about six months' time.

After each visit or enquiry by a Nurse, her report is submitted to the Superintendent of Nurses who examines and gives another date for a further report if the case is said to be progressing satisfactorily,

but, if not, the report sheet is submitted to the Chief School Medical Officer, who gives instructions as to further procedure, *i.e.*, by Warning Notices concerning non-provision of suitable treatment, by the offer of a personal interview in order that the parents may be advised, or, by the offer of treatment if the case is a suitable one for the School Clinic or the Residential School, or other organisation which can be of assistance to the particular child in question.

As is to be expected, many of the cases require only a few visits by a Nurse, while the nature of others is such that the child is under periodical visitation, report and re-inspection for many months, and even years.

The value of the work of following up in the homes cannot be shown statistically. The Nurse's object is to see that the child is kept under treatment so long as it is necessary, and with this end in view many methods have been used in dealing with the parents in order to obtain their co-operation.

The number of home visits paid during the year was 7,089, and the number of inspections of these cases in school made by the School Nurses was 6,207.

(*b*) Uncleanliness.

The following table shows the amount of uncleanliness found amongst the school children during the year 1927. The results of these general inspections by the School Nurses, together with comparative figures for the year 1926 are as follows :—

	1927.	1926.
Total number of individual Children found unclean...	10,621	8,803
Percentage infested with Nits of the head only	75.8	81.1
Percentage infested with Nits and Vermin—head	19.4	13.6
Percentage infested with Body Vermin	3.1	3.5
Percentage infested with Vermin of both head and body	.7	1.1
Percentage of cases of Uncleanliness (not Vermin) together with those found to have insufficient footgear or clothing	1.0	.7

The statistics have been kept in the manner shown above for a number of years, the Medical Officer being of opinion that the subdivision reflects to some extent the amount of parental care.

A few years ago the staff of Nurses for district work was increased and the result of more frequent visits to the schools and closer supervision of the children requiring attention appeared to show itself in the lesser percentage of children found to have vermin in the hair, while the percentage with nits only rose in proportion, indicating parental oversight.

The total number of children under the Nurses' supervision each year for uncleanliness, does not vary greatly, but the standard of cleanliness has been raised gradually for some years to absolute freedom from nits.

The work for the year 1927 showed a result which caused the School Medical Officer to make a careful enquiry. It will be noticed that during the past year the percentage of children found to have nits in the hair only has fallen by over 5 per cent, while the percentage of children found with actual vermin in the head has risen by 5.8 per cent. The inquiry showed that comparatively little inspection for uncleanliness was carried out during the first quarter of the year owing to illness amongst the Nurses. There were no less than ten Nurses absent at one time, and whether these were Nurses detailed for district work or clinic work, the temporary loss of Nurses' service affected the district work, as the clinics had to be kept fully staffed.

It would appear from the results of the general inspections by the Nurses in regard to uncleanliness, that without constant supervision the condition of many children soon falls below the required standard. Particularly is this shown in the percentage of children found to require attention during the quarter immediately following the summer holidays. The following are the percentages of new cases found to be unclean in the four quarters of the year (*i.e.*, children whom the Nurses were not following up) :—

1st quarter	... ...	3	per cent.
2nd ,,	... ...	2.6	,,
3rd ,,	... ...	7.9	,,
4th ,,	... ...	2.3	,,

The School Medical Officer is of opinion that the amount of what might be termed the grosser type of uncleanliness can only be kept down by the provision of sufficient staff to enable strict supervision in the schools to be maintained throughout the year, and that further improvement is a matter of the education of the older girl, especially by means of hygiene talks in the curriculum.

While the Nurses are carrying out their inspections in regard to uncleanliness and on the occasion of every visit to a school, opportunity is taken of ascertaining if there are any children requiring treatment other than that needed for cleanliness. During the past year the School Nurses have reported 3,027 such cases.

In addition to the above, the School Nurses have reported a considerable number of children whose spectacles were unsuitable or were not being worn because they were broken or lost. Such cases are also reported by the Principal Teachers and the number followed up during the past year was 690.

These reports by the Nurses tend to reduce the number of defects found on routine inspection.

Cases found by Nurses during School Inspections in regard to Uncleanliness—1927.

Defect or Disease.	
Ringworm—Head	32
Body	5
Scabies	21
Impetigo	416
Other Skin Diseases	532
Defective Vision	483
Squint	461
Eye Disease	512
Defective Hearing	24
Ear Disease	217
Dental Disease	11
Enlarged Tonsils	8
Adenoids	11
Enlarged Tonsils and Adenoids	11
Nose and Throat (other conditions)	24
Defective Speech	10
Anæmia	3
Rickets	29
Miscellaneous	217
Total	3,027

(*c*) Methods Adopted with Cases not Fully Treated.

When the visits of the School Nurses to the homes of children requiring treatment prove ineffective, even when the parents have been served with warning notices, the parents are requested to appear before the Chief Medical Officer to give reasons why the necessary treatment for their child has not been obtained. Each Friday morning is set apart for this purpose. Inattention in some instances is found to be due to misunderstanding, others to ignorance and others to indifference, while many plead economic stress. Each case is dealt with according to its merits; the parents are advised, assisted or persuaded as the case requires. These personal interviews have formed a part of the scheme of following up for practically the whole of the time since the inauguration of the scheme of medical inspection and produce a high percentage of good results.

The following list shows the number of cases dealt with and the defects or disease from which the children were suffering and not receiving full treatment.

Classification.	No. of Defects.
Uncleanliness—Head	3
Body	1
Insufficient Clothing	1
Malnutrition	1
Ringworm	14
Impetigo	3
Scabies	4
Other Skin Diseases	1
Blepharitis	7
Conjunctivitis	5
Defective Vision	282
Squint	49
Defective Hearing	1
Ear Disease	8
Enlarged Tonsils	5
Adenoids	2
Adenoids and Enlarged Tonsils	1
Enlarged Glands	1
Non-Pulmonary Tuberculosis	1
Rickets	5
Bronchitis	2
Infantile Paralysis	1
Total	398

(*d*) Attendance before Rotas.

In cases of persistent neglect and indifference the cases are referred to the Rota, in order that the parents may be interviewed and if necessary warned by members of the Committee. This step is taken when the interview with the Chief Medical Officer has produced no result. The Rotas deal primarily with cases of absence from school without sufficient cause, and as a preliminary to prosecution. Warnings at the Rotas, therefore, are very helpful.

The following table shows the number and type of cases submitted to the Rotas during the past year :—

Disease or Defect.	No. of Cases.
Defective Vision and Eye Disease	80
Rickets	6
Anæmia	1
Epilepsy	1
Mentally Deficient	2
Total	90

(*e*) Prosecution.

It was found necessary to prosecute parents in two instances for failure to provide suitable spectacles for their children. In one instance the parent complied after being warned, but in the other it was necessary to inflict a fine of 5/- before the necessary spectacles were obtained.

In two instances parents refused to send their children to Special Schools for mental defectives. Both complied with the requirements of the School Medical Officer after attending the Police Court.

In connection with persistent uncleanliness, there were ten cases in which legal proceedings were taken. In eight of these, the children were compulsorily cleansed, and subsequently found to be in a verminous condition. In two instances the legal proceedings were taken under the School Attendance Bye-laws. In the latter cases, the children are excluded from school for a period of three days. If the child has been cleansed in the meantime no further action is taken, but if the child remains verminous, as in these two cases, legal proceedings are taken against the parents for failing to send the children to school in a clean condition.

(*f*) Medical Supervision of Ailing Children.

The medical supervision of ailing children is undertaken at every school clinic, but it is strictly limited at all the school clinics except the Central Clinic at Deansgate. At this clinic eight sessions per week are devoted to the examination and supervision of children suffering from defects or disease which cannot be treated by the Education Authority at its School Clinics but in the main the cases consist of those children who are likely to be suitable for the different Residential Schools. In addition, cases are submitted by the Attendance Officers where absence from school is prolonged, and regarding whom the Officer has evidence that regular treatment is not being sought. Cases of all kinds are also reported by the various charitable organisations with a view to our providing treatment, and these are seen and dealt with according to their requirements. Another source of cases for medical supervision is where parents demand removal of their children from the various Residential Schools before treatment is complete, and it is the practice in such cases to bring the child for periodical medical examination.

During the year under report some 2,700 cases have been under medical supervision and there have been 7,048 medical examinations in regard to them.

There has been also the medical supervision of cases of post Encephalitis Lethargica and reference to this appears later in the report. (See page 58.)

Supervision, 1927.

The table given below shows the numbers and types of the cases supervised.

Defect or Disease.	Total.
Malnutrition	48
Enlarged Cervical Glands (Non-Tubercular)	11
Defective Speech	8
Heart and Circulation :—	
Heart Disease—Organic	178
Functional	153
Anæmia	196
Lungs :—	
Bronchitis	220
Other Non-Tubercular Diseases	106
Tuberculosis :—	
Pulmonary :	
Definite	14
Suspected	147
Non-Pulmonary :	
Glands	54
Spine	6
Hip	7
Other Bones and Joints	19
Skin	12
Other Forms	50
Nervous System :—	
Epilepsy	6
Chorea	99
Other conditions	86
Deformities :—	
Rickets	102
Spinal Curvature	16
Other forms	204
Other defects and diseases	1,011

All cases of minor ailments, defective vision, etc., are treated while the children are under medical supervision.

There is also a considerable amount of medical supervision in regard to blind, defective and epileptic children, and during the year 2,886 examinations or re-examinations were made of such children.

Further, there is medical supervision of children in the schools who were previously found to require treatment and who received such treatment at other places than the Committee's Institutions.

The medical supervision of the school child in Manchester is, therefore, comprehensive.

Medical Treatment.

In previous Annual Reports there have been outlined the types of medical treatment undertaken by the Manchester Education Committee. These have been continued during the past year, the only addition being the installation of an artificial sunlight outfit at the Central Clinic and at the Lancasterian Day Special School for Crippled Children (Remedial Department).

Reference to this treatment will be found later in the report.

School Clinics.

An additional School Clinic was opened in September. It is situated in the Cheetham district and serves a district not previously fully provided for.

As stated earlier in the report, the building was specially erected for the purpose and is of the bungalow type. The provision of this clinic is to be followed by others of a similar design.

The total number of cases of minor ailment requiring treatment during the year 1927 was some 5,500 greater than in the previous year. Of this increase, 4,500 went to the school clinics for their treatment, while the remaining 1,000 sought treatment elsewhere.

The increase was not due to any particular disease. All the conditions named in Table IV., Group I. show an increase except ringworm. Cases of ringworm of the scalp show a decrease of about 170 cases as compared with the previous year, while the number of cases of ringworm other than the scalp was approximately the same as that in the year 1926.

The incidence of scabies shows the greatest increase in percentage. During the latter months of the year this disease was reported in increasing numbers in all parts of the City and has called for the treatment of whole families irrespective of age and sex.

The greatest increase numerically occurs under the heading "miscellaneous." This can be accounted for by stricter attention to minor injuries, etc., and to the treatment of cases of goitre, minor deformities, and the cases treated by artificial sunlight. The development of the scheme of treatment, and the increase in the variety of treatment available must cause the numbers treated at the school clinics to rise.

The actual number of cases treated by the School Clinics during the past year was 32,624.

Tonsil and Adenoid Clinic.

This section of school clinic treatment has been carried on as in previous years, and the following are the reports of the Surgeon and Anæsthetist.

Tonsil and Adenoid Clinic.—Report for the Year 1927.

During the year there were 1,262 examinations for enlarged or diseased tonsils or adenoid growths, resulting in 881 operations for one or both conditions. 750 children were seen after operation, either at home or at the Clinic.

Total number of operations since the Clinic opened ..... 7,360.

There have been no deaths during the year and almost all cases did well and showed cessation of, or improvement in, symptoms. There has been no marked difference in methods or technique.

There was one serious case of hæmorrhage, though one or two gave us some trouble. The severe case occurred in a hæmophiliac in which the symptom was not in evidence during the operation but started in the early hours of the following morning and was very profuse—this was eventually stopped, but recurred at intervals of a few days : the child was sent into Hospital and ultimately recovered.

Children operated upon for deafness showed a uniform improvement—the majority of cases being cured.

A table of incidence is given below.

(Signed) H. H. P. JOHNSON.

Table of Operations.

	No.	*M.*	*F.*	*Ages* 4-6	6–8	8–10	10–12	12–16	*Haem.*	*Deafness cured or impd.*	*Deafness not cured.*	*Prev. Op.*
Jan.	75	40	35	21	18	17	4	15	2	15	4	1
Feb.	82	39	43	23	25	17	5	12	0	19	2	0
March	90	43	47	31	38	8	5	8	0	9	4	0
April	61	32	30	21	15	12	4	9	2	25	3	2
May	93	43	50	38	30	10	7	8	1	29	6	1
June	62	33	28	27	22	6	1	6	2	18	2	0
July	68	38	30	22	20	12	6	8	0	9	1	0
Aug.	35	21	14	12	7	8	1	7	0	8	2	1
Sept.	87	45	42	31	25	14	7	10	2	28	6	2
Oct.	80	45	35	27	26	12	6	9	1	27	2	1
Nov.	87	43	44	36	24	9	5	13	2	25	5	2
Dec.	61	31	30	24	18	8	4	7	1	12	1	0
	881	453	428	313	268	133	55	112	13	224	38	10

ANÆSTHETIST'S REPORT, STRETFORD ROAD SCHOOL CLINIC.—TONSIL AND ADENOID DEPARTMENT.

During the year 1927, anæsthetics were administered to 881 children, there being no untoward sequellae.

Anæsthesia was produced with ether by the open-dropped method, chloroform and ether mixture being used occasionally in addition.

Since the opening of the Clinic a total of 7,360 anæsthesias have been produced with the same happy results.

(Signed) H. M. COHEN.
Anæsthetist.

Tuberculosis.

The methods of obtaining treatment for tuberculosis children remain the same as outlined in the previous years. The agencies through which treatment may be sought are still utilised and every effort is made to obtain treatment for the children.

Skin Disease.

RINGWORM (SCALP).—The number of cases known to require treatment shows a definite decrease as compared with the previous year, indeed the total number of cases known, *i.e.*, 423, is the lowest since the scheme of school medical inspection and treatment was instituted. It will be observed from the table at end of the report that 90 per cent. of the cases are treated by the School Medical Service. The number treated by X-rays is shown in a special report under that heading.

RINGWORM (OTHER THAN SCALP).—The number of cases under this heading is practically the same as in the previous year, but there is an actual decrease of 156 cases compared with the average found during the five years previously.

X-Rays Treatment.

The use of the X-Rays for the treatment of ringworm of the scalp and other skin diseases has been continued on similar lines to those obtaining during the past few years, and the undermentioned is a statement by Dr. Bamford of the work done during the year under report :—

X-RAYS TREATMENT.—RINGWORM OF THE SCALP.

Number of cases carried over from 1926	36
Number of above cases discharged as cured	36
Number of new cases treated by X-Rays	151
Number discharged as cured	130
Number still under treatment	21

OTHER SKIN DISEASES.

Nature of Disease.	*No. of Cases.*	*Result.*
Multiple Warts	43	22 discharged cured.

During the year the X-Ray apparatus has been overhauled and the "Gas Tube" has been replaced by the "Coolidge Tube." This has necessitated the installation of a "rotary convertor" (to convert direct current into alternating current) and a step-down transformer for supplying current to heat the filament.

The cost of conversion has been fully justified in that the average period of treatment has been reduced and the output of X-rays is more under control both as to amount and penetration.

The reaction of warts to X-Rays varies considerably, the flat, sessile ones disappearing much more readily than the horny types. The full pastille dose is given and if after three exposures have been given at suitable intervals of from four to six weeks and no appreciable improvement is obtained, further treatment with the rays is discontinued.

Recurrent eczema of the flexures of the elbow and popliteal space yield very well to X-Ray treatment. Half to full pastille dose is given, which is repeated in a month's time if necessary. A stimulating ointment, *e.g.*, Ung. Resorcin Co. or Ung. Resederm is applied after exposure. The majority of the cases heal after the first exposure, and so far, of the cases which I have treated, I have not had the necessity to give more than two exposures without their recovering.

THOS. F. BAMFORD.

Artificial Light Treatment.

In September, 1927, apparatus for the administration of Ultra Violet Rays was installed in the Central Clinic at Deansgate and also at the Lancasterian School for Crippled Children. In both cases the instruments provided are mercury vapour lamps (Hanovia make).

At the Lancasterian Clinic up to the present, only cases of malnutrition and the after effects of rickets have been dealt with, but at the Central Clinic in addition to cases of anæmia, malnutrition and old rickets, cases of rheumatism, asthma, chorea, are under treatment, as also are certain skin diseases such as psoriasis and alopecia areata. The number of cases dealt with up to the present is too small, and the length of treatment too short for any definite statement to be made as to the results obtained.

(Signed) R. A. H. ATKINSON.

Mr. E. D. Telford, the Surgeon-in-Charge of the cases at the Swinton House and Parkfield Residential School for Crippled Children makes the following report on the treatment of the inmates of this school by ultra-violet rays.

The treatment of rickets by "Artificial Sunlight" was begun in December, 1925, and up to this date (March, 1928) no less than 20,880 treatments have been given.

The work is carried out by four Mercury Vapour Lamps (Hanovia pattern) and the burners are, from time to time, tested to check their output and efficiency.

Since June, 1926, a very careful record has been made of all cases, 120 in number, submitted to treatment. The dosage has been recorded in each instance and the children have been specially examined at frequent intervals with the object of determining the value of the treatment.

It is not possible to give these results in any exact or definite form. It is to be remembered that the majority of our children are past the age at which rickets is still an active disease. Further, whilst the "sunlight" treatment is being carried out the usual remedies of food, air, splints, exercises and massage are being energetically applied.

There is no doubt that a temporary increase in spirits and vitality is very evident after use of the light, but its value as regards permanent improvement is more difficult to estimate. In endeavouring to arrive at this value particular care has been paid to the younger children in whom rickets is still active. In these younger children improvement has been very evident but not noticeably more evident than one is led to expect from a very long experience of the older forms of treatment.

It is found that of the two types of rickets, the florid type does better than the pale anæmic type. This latter type appears to show the same stubbornness to the artificial sunlight as it always does to other forms of treatment.

To sum up one may say that whilst the artificial sunlight is a useful addition to the treatment of rickets it falls short of justifying the somewhat extravagant claims which are from time to time advanced in its favour.

(Signed) E. D. TELFORD, F.R.C.S.,
Consulting Orthopædic Surgeon.

Scabies.

The incidence of this disease amongst school children was much greater during the year 1927 than during the previous year, there being 521 cases as against 304. There was a rapid rise in the numbers

reported during the last two months of the year, and these were mainly confined to the northern part of the City.

The same methods of treatment have been continued, and the provision of a disinfector and bath at the Cheetham Clinic has allowed of much more rapid treatment of the cases. As this Clinic deals with the cases occurring in the northern part of the City, it was found necessary to employ a Nurse full-time in treating them.

All cases of scabies are also reported to the Medical Officer of Health in order that any other members of the family not of school age and who are affected may receive treatment. The School Medical Officer and the Medical Officer of Health co-operate to the fullest extent in the treatment of this disease amongst the population of the City.

The centres where scabies cases are treated are also used for the voluntary cleansing of children affected by verminous conditions and 57 children were so treated last year. Severe cases of other skin diseases are also treated, especially where the condition is such as to require that the patient shall be undressed and the use of a bath is necessary to the treatment.

Impetigo.

The number of cases of impetigo attending the Clinics was approximately 1,400 greater than in the previous year.

It is very uncommon to find a really severe case of impetigo in the schools, in fact, only 387 cases of impetigo were discovered at the routine inspections out of a total of 5,132 new cases reported during the year.

All the Clinics are open every day and all day, so that any case found either by the teachers or the school Nurses can be sent for immediate treatment.

Other Skin Disease.

These cases were not quite so numerous during the year under report as in the previous year but the difference, to some extent, may be due to the keener discrimination between these cases and those classified under "Miscellaneous."

During the past year, the figures appear to show that more cases than usual were treated at other places than the clinics.

External Eye Diseases.

There were approximately 200 more cases of these diseases treated at school clinics than in the year 1926.

There was a small outbreak of conjunctivitis at one of the Tenement Dwellings and this is referred to in the report of Dr. Lily Stopford, the Consulting Oculist.

The total number of cases of external eye disease which received treatment during the year was 5,204, of which number 4,774 were treated at the school clinics.

Defective Vision and Squint.

The number of school children whose vision is specially examined each year with regard to the prescription of spectacles continues to be high. So far as possible there is a yearly examination of children who have had glasses prescribed in previous years and also of a great many whose vision was not sufficiently poor to warrant prescription of glasses.

The numbers of cases of defective vision submitted to refraction at the school clinics during the past year was 5,943 new cases and 2,429 cases which were seen the previous year, and marked for further examination in 12 months' time. Out of the new cases practically 76 per cent. had glasses prescribed, while out of the cases kept under supervision it was found necessary to prescribe glasses or alter the existing prescription in about 27 per cent. of the cases.

Taken as a whole the parents show a very keen interest in the yearly re-examination of their children's vision, and if the appointment is not forthcoming when due there is usually an enquiry to ascertain if their child's case has been overlooked.

The teachers too, evince great interest in the supervision and wearing of glasses by the children, and it is no uncommon occurrence for the School Medical Officer to receive from a Principal Teacher a list of names of children who have lost or broken their glasses. During the past year 698 such cases were reported and followed up.

Dr. Lily Stopford, the Consulting Oculist, makes the following report in regard to defective vision and eye disease.

"The treatment of eye diseases has been carried out along the same lines as in previous years.

A fortnight after the termination of the summer holidays, an outbreak of conjunctivitis occurred at two clinics. The earliest cases were in children who lived in a block of dwellings situated between the two clinics, and the subsequent cases occurred in the schools in the immediate vicinity.

This year a school accident necessitated an operation. A boy aged 12 years was hit in the left eye with a pen nib. When the boy was seen at the clinic there was found to be a cut cornea with prolapse of iris, the wound being sealed with a fibrinous exudate. He was referred to hospital immediately and was admitted. An iridectomy was performed and the eye made a good recovery.

Two cases this year have emphasised the importance of frequent examinations.

1. Girl aet. 13. first seen in April, 1926. There were signs of old keratitis diffusa, but the condition was apparently quiescent. The child was myopic, but with suitable glasses the LV. was 6/9. The next examination was in November, 1927, when it was found that the LV. which was 6/0, could not be improved with glasses. The vitreous was hazy and some floating opacities were seen, but no definite lesion of the fundus could be found. The child was referred to hospital where a Wasserman reaction was taken which was found to be positive.

2. Girl aet. 12. first seen in December, 1926, for defective vision. The LV. was then improved with glasses to 6/6 P. The child was re-examined in December of this year when it was found that the LV. was 6/12, and could not be improved with glasses. The fundus showed signs of early choriditis.

Both these cases had been referred at the clinic for re-examination in twelve months' time according to routine; in neither case had the child complained of diminution of vision, and the parents were unaware of any trouble. Had these cases not been referred for re-examination, it is most probable that the condition would not have been discovered until further damage had been caused."

(Signed) L. STOPFORD.

Ear Disease and Defective Hearing.

There were 5,255 ear defects under treatment during the past year, and of this number 4,423 received their treatment at the school clinics.

Wherever necessary and possible children suffering from ear discharge are under daily treatment at the school clinic. The treatment by ionization is still available and the following is a report by Dr. Ransford, who has charge of this treatment.

Report on Ionization and Ear Disease.

During the past year there has been an increase in the number of patients attending Stretford Road Clinic for ear disease, where the treatment by ionization is carried out.

Of a total of 652 treated (as against 565 in 1926) 554 were discharged cured, and 98 were still under treatment at the end of the year.

Ionization proved of benefit in nearly all the cases treated, even though, in some, it failed to effect a cure. This is probably owing to the fact that I make a point of not refusing any case sent to me unless I consider the treatment is definitely contra-indicated; also a certain number were obstinate cases in which treatment was given to clear

up the diagnosis, or else as a last resort. The remainder were " selected as suitable " and, as a rule, these responded to treatment as one would expect.

Still it was worth while. Some that looked quite hopeless were quickly cured, while others that looked promising received only temporary benefit. There would be a complete cessation of discharge for a week, or more, and then it would return.....as bad as ever.

In treating ear disease, of course, there must be a considerable number of recurrences; though few people appear to realise this, it is only in the nature of things.

It is unnecessary to go into details, but suffice it to say an ear that has once suffered a tympanic perforation must always be more liable to re-infection than one which has been maintained in a perfectly sound condition.

In my experience, the most fruitful cause of recurrence has been the public swimming baths and, in order to avoid this as far as possible, cards have been printed warning parents that it is advisable for their child to discontinue attendance there for a stated period. One of these is given to the child under treatment to take home, and usually I make it correspond with the remainder of the duration of his, or her, school life.

Apart from recurrent cases, by far the most common cause of otorrhœa is a continuously dirty nose. The usual maternal procedure is to wipe the child's nose—often with a none too clean handkerchief. The child snuffs up the rest, and Nature's excellent method of evacuating bacteria is very completely nullified. The disease spreads backwards, with resulting adenoids, and it is only a question of time before the middle ear becomes infected via the eustachian tube. I am glad to say many of the teachers are now taking this up, and with gratifying results.

It is interesting to note that, after the midsummer holiday, quite a number of children—some of them obstinate cases—return to the clinic cured; even though the parents may have seized the golden opportunity to discontinue all treatment.

Undoubtedly, the sunshine and open air life are responsible for this satisfactory result, and, I cannot help thinking, could we but send more of them to Open Air Schools outside the town, where they could receive treatment, the results would justify the measure.

Ear disease is by no means the rather trivial thing it has been so long considered. It is a very serious condition, and through it many children leave school heavily handicapped, and in danger for the rest of their lives.

To do the next best thing possible, arrangements have been made that a certain number shall be treated with Ultra Violet Radiation, concurrently with the routine methods in use at the clinic. It may not achieve much but, at least, it is better than adopting an attitude of *laissez faire*.

Duration	*No.*	*Cured*	*Treatments*	*Failed*	*Uncertain*
Under 1 year ...	3	3	8	0	0
1 to 3 years ...	21	16	24	1	4
3 to 6 years ...	19	13	45	6	0
Over 6 years ...	8	6	9	1	1
	51	38	88	8	5

(Signed) JOHN E. RANSFORD,

Assistant School Medical Officer.

Dental Defects.

The School Dental service was extended during the past year by the appointment of a Dentist to Cheetham Clinic which was opened in September. The work of the Dental Officers is greater in the aggregate by about 3,000 examinations and by 2,300 children actually treated. One of the Dental Surgeons was away from duty for a period of about three months owing to an operation for appendicitis, otherwise the increase would have been greater.

The statistics show that about one-third of the children examined are "specials" and this closely corresponds to the percentage of the year 1926, while the percentage of children found to require treatment and accepting treatment is the same as the previous year, namely 47 per cent.

There appears to be no change statistically in the work of dental inspection and treatment as shown below :—

Year.	*Found at Routine Dental Inspection to require treatment.*	*Actually treated as a result of Routine Dental inspection.*
1924	75 per cent.	56 per cent.
1925	71 per cent.	63 per cent.
1926	65 per cent.	47 per cent.
1927	71 per cent.	47 per cent.

Crippling Defects and Orthopædics.

The treatment of minor orthopædic cases at the Shakespeare Street Clinic has been continued during the past year under the supervision of Dr. Matthews.

Remedial Exercises.

The work of demonstrating remedial exercises to children suffering from minor deformities has been continued also under the direction and supervision of Dr. Matthews. In order to keep pace with the cases it has been found necessary to utilise the school clinics for demonstration purposes. The children are notified to attend in groups, *i.e.*, according to the nature of the defect, so that the instruction may be given to several children at one time. By attendance at the clinics the children also receive closer medical supervision, as their appointments are made to coincide with Dr. Matthews' attendance at the clinics.

The following figures indicate the numbers of cases dealt with :—

(1) No. of cases known	352
(*a*) Rickets	42
(*b*) Spinal Curvature	124
(*c*) Other Deformities	186
(2) No. of cases which have received treatment :	
(*a*) Rickets	40
(*b*) Spinal Curvature	118
(*c*) Other Deformities	185
(3) No. of cases discharged as cured :	
(*a*) Rickets	10
(*b*) Spinal Curvature	55
(*c*) Other Deformities	72

Five cases of rickets, seven of spinal curvature and one of "other deformities" were taken from the lists on account of having left school, removed from the City or were found to be unsuitable.

Twenty children have received massage.

The number of demonstrations given by the Nurse was 1,287, and the medical supervision has necessitated 816 examinations.

Dr. Matthews makes the following report :—

The treatment of orthopædic cases has been carried on at the Shakespeare Street Clinic. This treatment has followed along similar lines as heretofore with the exception that co-operation between the Remedial Exercises Department and the Orthopædic Department has been much closer. This is all to the good of the patient and the departments concerned, as it tends to speed up beneficial results.

The following is a list of cases treated and results:—

Lesion	*Cured*	*Referred to Hospital*	*Greatly improved and reported for Remedial Exercises*	*Unsuitable for Treatment*	*Improved and left*	*Referred for Residential School*	*Improving and still under Treatment*
Foot Deformities	8	3	1	...	...	1	10
Joint Injuries	6	...	3	...	...	...	3
Deformities of Rickets	3	...	...	...	...	...	6
Flat-foot (severe)	8	...	11	...	...	...	7
Paresis	4	...	...	...	...	...	3
Muscular Atrophy after Infantile Paralysis	5	...	5	...	2	1	6
Old Fracture, Dislocation	...	1	...	1	...	...	...
Early T.B. Hip	...	1	...	...	...	...	...
Muscular Dystrophy	...	1	...	...	...	...	...

The cases treated by radiant heat, which cases are treated in connection with the Orthopædic Department show gratifyingly good results. They are as follows:—

Lesion	*Cured*	*Referred to Hospital*	*Improved*	*Improved and still under Treatment*
Goitre	40	1	1	33
Adenoma Thyroid		1	...	...
Sub-Acute Rheumatism ...	7	...	...	...
Enlarged Glands	7	...	...	5

The report of last year contained a full account of the methods adopted to carry out the scheme of remedial exercises, and the same methods, with certain necessary modifications, have been used this year. It was noted last year that there were some unforeseen handicaps to successful and unhampered treatment; the principal handicaps being—

(*a*) Unsuitable rooms being the only accommodation available in some of the schools;

(*b*) Unsuitable flooring in a few schools;

(*c*) Insufficient or unsuitable footgear of some of the children who were being treated.

These difficulties have been practically all overcome by using a room at the Shakespeare Street, Cheetham, Gorton and Openshaw School Clinics on different afternoons. At all these clinics, there is a small stock of various sized rubber shoes available for such children as need them during their treatment; also, mats are provided for lying-down

exercises; and, lastly, a small amount of apparatus for use. With only a very little more apparatus, we shall be efficiently equipped. It is evident that elaborate apparatus would defeat the end in view, as it would be impossible, in most cases for parents to provide anything approaching it in the home, and the exercises taught must be consistently carried out at home. Further, it is not advisable to give a child the impression that elaborate apparatus is essential when the cure lies largely in their own efforts.

Demonstration of the exercises to the children at the clinics in the afternoon has made it possible to treat larger numbers, as the Nurse can visit the children in outlying schools in the mornings and give them the necessary attention and following-up, thus saving a great amount of time that would be lost in travelling. It will be noticed that the numbers have increased greatly, and it would have been impossible to cope with them except by the means adopted.

A goodly number of cases have been treated in co-operation with the Orthopædic Clinic and with gratifying results.

The parents are very keen to attend and see what is going forward and co-operate with zeal whenever asked to do so.

I would like to call attention to one particular type of disease for which this form of treatment is peculiarly suitable, I refer to the catarrhal type of child in which group I include those children who tend to have frequent attacks of bronchial catarrh and are roughly grouped as chronic chest cases. The condition is only too common, and one is always coming across these weedy and flabby children with poor chest expansion, recurrent attacks of bronchial catarrh, "flopping" posture, dull and apathetic appearance, and bone and ligament changes indicative of a legacy of rickets.

One knows that the causative factors of this type are often due to home conditions, over-crowding, badly cooked or insufficient diet (not merely in quantity) and that these factors are being slowly but surely overcome by improved sanitation and education, but that is of no use to the children or even adults who are suffering now from this condition. These require treatment *now*.

The most striking symptoms to the observer are that the child as a rule looks weedy, is of dirty complexion, and is much below the normal capacity for work and play. The heart will be found to be normal, some signs for bronchitis are present in the lungs, but the tremendous amount of dyspnoea on even such moderate exercise as walking upstairs is very apparent and out of all proportion to the physical signs found in the chest. One cannot help but observe in the majority of this type of case that the range of movement of the chest is very limited.

Needless to say, all sources of infection round the upper air passages should be cleared up, *e.g.*, adenoids and enlarged tonsils should be removed, septic teeth attended to, etc., and whilst attending to these, it is essential that cases where the tonsils and adenoids have been removed should have remedial exercises for a short period, as practically every one has been the victim of frequent attacks of bronchitis and moreover has to learn the art of breathing properly. Chest patients having rales in the upper lobes and supposed to be tuberculous, on fuller examination often show no other signs of tuberculosis, but septic foci are found in the upper air passages and the condition clears up at once when these have received attention.

The ordinary medicaments must be used for these chronic chest cases, but all measures taken may prove ineffective in preventing recurrence until the chest is made to move freely and easily. It is surprising how much extra expansion can be obtained after even only a short course of exercises.

I believe that much of this type of illness, and it is a very disabling illness which in middle life is only too frequently fatal, can be prevented by such measures as have been indicated.

G. W. MATTHEWS.

The Orthopædic Clinic.

The Committee appointed E. D. Telford, Esq., F.R.C.S., and Harry Platt, Esq., F.R.C.S., Consulting Orthopædic Surgeons in connection with the commencing of an Orthopædic Scheme. Both Mr. Telford and Mr. Platt commenced their work in September last, and Mr. Telford makes the following report in regard to the Scheme :—

Report of the Orthopædic Clinic, 1927.

A beginning was made in October with the organisation of an Orthopædic Clinic at the Lancasterian Special School.

Up to the end of the year 20 new cases have been examined and arrangements made for their treatment. A systematic and detailed surgical examination of the children attending the Lancasterian School was begun and some 70 cases have had their condition and treatment under review.

It is certain that the work of this department will increase steadily and that the question of a special building with accommodation for X-Ray work, light treatment, splint and plaster workrooms will require consideration in the near future.

(Signed) E. D. TELFORD, F.R.C.S.,
Consulting Orthopædic Surgeon.

Operative Treatment.

A considerable amount of operative treatment is obtained for children at the different hospitals and dispensaries throughout the City and also by private medical practitioners.

The following is a list of cases which received operative treatment last year in addition to those carried out at the Tonsil and Adenoid Clinic at the Stretford Road Clinic :—

Adenoids and Enlarged Tonsils	299
Other conditions of the Nose and Throat ...	1
Ear Disease	10
Tubercular Disease	6
Deformities	4
Miscellaneous conditions	33

Many of the above cases have been kept under supervision by the District Nurses for many months, and such cases add considerably to the work of home visiting.

Mr. Telford and Mr. Platt also perform operations required in connection with the children visited at Swinton House and Parkfield and those in attendance at the Lancasterian School. These operations are carried out at the Royal Infirmary and Ancoats Hospital.

Treatment Chart.

The Chart which has been prepared showing the growth of School Clinic treatment appears at the end of the report.

Open-Air Education.

The Committee maintains five Residential Schools for children suffering from certain types of disease, and the reports of the Visiting Surgeon and Visiting Medical Officers are given under a separate heading for each institution.

Swinton House and Parkfield Residential School for Crippled Children—Report for 1927.

The number of children in the Schools on December 31st, 1927, was 120, and during the year 52 new cases were admitted. The total number of children under treatment during 1927 was 172.

An analysis of these 172 cases is as follows :—

Rickets	108
Tuberculous Disease of Spine	30
Tuberculous Disease of Hip	13
Tuberculous Disease of Knee	11
Other forms of Surgical Tuberculosis	10
TOTAL	172

Cases to the number of 51 were discharged during the year.

Of these cases no less than 48 were discharged as apparently cured. These 48 cases may be classified as follows :—

Rickets	40
Tuberculous Disease of Spine	5
Tuberculous Disease of Hip	2
Tuberculous Disease of Knee	1
TOTAL	48

One case died in the School from tuberculous peritonitis and another child from miliary tuberculosis. One case was discharged as unfit for further treatment.

The number of operations performed by me during the year is 23.

The general health of the School has been excellent throughout the year and there has been no epidemic disease.

(Signed) E. D. TELFORD, F.R.C.S.,
Consulting Orthopædic Surgeon.

Report for the Year 1927 on the Alice Briggs Open-Air School.

During the year there were discharged from the Home sixty-seven children, classified as follows :—

Anæmia	21
Anæmia Post-Rheumatic	6
Anæmia and Bronchitis	6
Anæmia and Debility	8
Malnutrition	5
Debility	7
Nervous Debility	3
Post-Chorea	4
Heart Disease	4
Pre-tubercular	1
Mentally Defective and Debilitated	1
Enlarged Cervical Glands	1

As usual the cases of *Simple Anæmia* head the list in numbers. The great majority of them have recovered in the usual time which would appear to be about 9 months. A few are taking much longer, and one or two show little improvement as regards their anæmia but are much benefited in all other ways.

The cases of *Bronchitis* quickly lost their trouble.

The cases of *Rheumatic Anæmia* take longer than other anæmias, as do those with debility in addition.

Of the cases of *Chorea* all have done well, though one had another attack while in the Home. One child developed spinal caries and was removed.

The case of mental deficiency improved in general conduct as regards her relations with the other children but remained very backward in school.

The year has been very satisfactory as regards general sickness. There has been no serious illness.

There has been no case of infectious disease and the cases of tonsilitis which is a frequent trouble have been fewer.

A few cases of ringworm which remained from the previous year were cured.

There were two accidents of a more serious character than usual. One was a compound fracture of the terminal phalanx of a finger, due to a "trap" in a door. The other was an injury to the lower jaw, due to the child striking her face against a door. Both resulted in a good cure, the finger being left stiff, but with practically no disability.

(Signed) G. STOWELL, M.B.

Summerseat Special School.

Annual Report for the Year ending December 31st, 1927.

No. of Children in residence, January 1st, 1927 ...	34
No. of Children admitted during 1927	42
No. of Children discharged during 1927	42
No. of Children in residence, January 1st, 1928 ...	34

Of the number of children discharged, 27 were discharged as "fit," 9 were sent out for further treatment, 3 left at their parents' desire, 1 was transferred to the Manchester Royal Infirmary suffering from an acute attack of appendicitis, 1 was discharged as not fit for school and 1 decamped five days after admission.

The health of the children on the whole has been very satisfactory. There has been no incidence of any infectious disease and no disease of any serious nature with the exception of the case of appendicitis already mentioned. A child with a septic wound in the finger was taken to the Ramsbottom Cottage Hospital, where a piece of necrosed bone was removed, under an anæsthetic.

Examination of the children reveals the fact that a large percentage suffer from carious teeth. In this connection I am pleased to note that the School Dentist has paid quarterly visits to the School. This, I think, is a matter of great importance, owing to the bad influence of diseased teeth on the general health as well as to the possibility of loss of time in education.

I should like to place on record my appreciation of the great assistance rendered to me by the Matron and Nursing Staff.

(Signed) C. W. CRAWSHAW, M.B., D.P.H.

Medical Report on Mobberley Open-Air School for Year 1927.

During the year 1927 there were admitted 118 children and a similar number was discharged, leaving 75 in residence.

The health of the children has been remarkably good throughout the year. During January 3 boys had slight attacks of bronchitis, and during February there were 2 cases of influenza. In addition there were 2 cases of tonsilitis and 1 of pleurisy. 1 boy had repeated attacks of asthma for several months, and as he was deriving no benefit from his stay he was discharged. 2 cases were removed to the Manchester Royal Infirmary for treatment—1 of tubercular disease of the kidney and 1 of tubercular abdominal glands.

There are no cases of accident to report, nor have there been any cases of infectious disease throughout the year. The children have all been very happy and contented and the improvement in the great majority of the cases discharged has been very marked.

(Signed) R. J. MACKESSACK, M.D.

The following letter from the Matron of Mobberley Residential Open-Air School gives an interesting report of the result of the development of the Boy Scout Movement in a residential institution at which City boys are dealt with.

" The School Medical Officer.

Dear Sir,

I am enclosing a photograph of the Scouts and Cubs, who were present at Alderley Church on Sunday, April 22nd, when the troop flag (kindly presented by Mr. Hutton, of Alderley) was dedicated and presented.

The Mobberley Open-Air School Troop and Cub Pack has now been registered at Headquarters for a year, and during that time about 50 Scouts have passed their Tenderfoot and 24 have passed their 2nd Class Scout Tests.

A large number of younger boys have also passed the proficiency test for Cubs.

The formation of the Troop has been of very great benefit to the school in many ways.

The boys have had many varied and extra interests, and have worked hard at signalling, first-aid, and to procure badges for gardening, poultry work and bugling. At present they are keenly collecting specimens of flowers and leaves for a naturalist badge.

They have also enjoyed Scout games, such as 'tracking,' 'dispatch carrying,' camp fire lighting and dinner cooking, which have all helped to give them an exciting and interesting play time in the field.

Besides this the movement has helped considerably in keeping up a high standard of discipline. The boys are 'on their honour' and in almost every case they have done their best to live up to the Scout Ideal. They are divided into patrols, and each leader is responsible for the discipline of his patrol, and for the smartness and general tidiness of their appearance each morning before school. A keen friendly rivalry exists between the various patrols, and this has made the discipline very easy to maintain.

New boys coming out also have an advantage, as instead of being left 'on their own' they are immediately given a place in patrol, the members of which must see that they are helped through the details of the day's routine.

The staff, including the gardeners who teach poultry work, and bugling, have been most keen and helpful, and all of us, staff and boys, have found a great improvement in pleasure and work.

Yours faithfully,

E. WILDING,

Matron."

Medical Report on Soss Moss School for Epileptics for Year 1927.

During the year the health of the children has on the whole been very good. Three cases of tonsilitis occurred but there were no other illnesses of note. There was complete freedom from infectious diseases.

There were the normal number of minor accidents from falls during epileptic seizures. There was one case of greenstick fracture of the arm and one of greenstick fracture of the leg—both of which made perfect recoveries.

One boy suffered from concussion of the brain from a fall on the head, but after a period of treatment in bed he made a complete recovery.

There is one death to report—that of a girl who took violent epileptic seizures and died after a few hours' illness in spite of every care and attention.

(Signed) R. J. MACKESSACK, M.D.

Lancasterian Day Special School for Crippled Children.

This school has been carried on in much the same manner as in previous years, and the following table shows the numbers which have been in the school during the past year :—

	Boys.	*Girls.*	*Total.*
(1) Number on registers, 1st Jan., 1927	86	72	158
(2) Number admitted during 1927 ...	34	12	46
(3) Number discharged during 1927 ...	26	18	44
(4) Number remaining on registers, December 31st, 1927	94	66	160

The reasons for the removal of the names from the registers are as follows :—

Exemption granted	18
Returned to ordinary school	9
Admitted to hospital	2
Admitted to Swinton House Residential School	3
Admitted to schools for mentally defective children	2
Discharged to take a commercial course ...	2
Discharged as unsuitable	2
Left, over age, etc.	6
	44

Old Scholars' Guild.

The sixth annual meeting of the Old Scholars' Guild was held at the school on Wednesday, March 14th, 1928, from 7 to 9 p.m.

There were present 111 former scholars, Mrs. Southern, the first voluntary teacher in the school and now a member of the Care Committee, Miss Teale, the Secretary of the Invalid Children's Aid Association, the teaching, nursing and massage staffs of the school.

The visitors were entertained to tea, and some of the older scholars at present in the school dramatised :—

"The Luck of Troy" ... ... *An old Greek play.*
"Before Naseby, from Oliver Cromwell" *John Drinkwater.*
"The Bishop's Candlesticks" ... ... *Norman McKinnel.*

The plays were much appreciated by the visitors, and they expressed their pleasure in meeting each other and their former teachers and nurses.

The following are some particulars of the 111 scholars who were present :—

	Boys.	*Girls.*	*Total.*
Employed	36	46	82
At Elementary School	6	8	14
At Junior Commercial School ...	3	...	3
At Day Continuation School ...	1	...	1
Unemployed	4	6	10
Unemployable	...	1	1
	50	61	111

The occupations in which the workers are engaged are :—

	Boys	*Girls*	*Total*	*Range of Wages*
Office work	11	3	14	12/- to £2/5/-
Needlework (tailoring, machinery), finishing (dressmaking, millinery embroidery)	1	23	24	8/- to £2/4/-
Sales (motor cars, sweets)	3	1	4	10/- to 15/6 with commission
Mill work	...	6	6	13/9 to £1
Design	4	...	4	14/- to £2/15/-
Domestic work and Bakery	1	5	6	8/- to 19/6
Domestic work in home	...	2	2	Board in addition
Hairdressing	1	...	1	.....
Mechanic (including Chauffeur) ...	3	...	3	.....
Motor Bus Conductor	1	...	1	£3.
Box making and packing	3	2	5	13/6 to £1.
Printing and Bookbinding	1	2	3	23/- to £1/6/6
Blacksmith	1	...	1	£1.
Leatherwork and Cobbling	4	...	4	Varies to £1/4/-
Rubberworks...	2	...	2	£1/10/-
Tin and Wire Works	...	2	2	£1/2/6
	36	46	82	

The following are some particulars of the physical condition of the 111 former scholars :—

Disease	*Number affected*		*Number who still wear splints or surgical appliances*		*Number who wore splints and have discarded them*		*Numbers who never wore splints*	
	Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
Infantile Paralyses ...	20	22	7	7	13	15	...	...
Other Paralyses...	5	5	1	...	2	...	2	5
Amputations	2	1	2	1	...	...	...	...
Rickets	4	12	...	...	4	12	...	...
Spinal Curvature	4	9	...	1	3	8	1	...
Spinal Caries	4	2	...	2	4	...	...	...
Tuberculous Joints	6	6	3	3	3	3	...	...
Osteomyelitis ...	5	1	...	1	...	...	5	...
Spinal Bifida	...	1	...	...	...	1	...	...
Accidents	...	2	...	...	...	...	...	2
Totals	50	61	13	15	29	39	8	7
Grand Totals	111		28		68		15	

The number of children who qualify for, and take up office work increases as the facilities for training are enlarged in the school. The desire to pass on to the Junior Commercial School is quickened as children and parents realise that former scholars have benefited by the opportunities available there. One such former scholar is working in an insurance office and reports that he has secured first-class certificates in book-keeping and shorthand in the examinations held by the Society of Arts last year.

Four boys are working in the design department of Messrs. Burgess, Ledward & Co., and reports on their progress are sent to the Head Teacher. These boys feel that they must maintain the reputation of their school so that the way for employment of their schoolfellows is kept open.

One boy who left the school in 1925 states that he has taught his father the leatherwork which he learnt at school and that they spend their evenings together at this work. They have sent modelled leather bags to many parts of the world and have never been without orders since 1925.

The old scholars were without exception neatly and smartly dressed, and very appreciative of the help they had received at the school.

J. NICHOLLS,
Head Teacher.

Remedial Department.

A great amount of work has been done for the children at this school during the past twelve months, and there have been certain developments.

All the children receiving treatment are now given physical exercises once per week, but, of course, this is mainly confined to the exercising of the arms. For those who can participate, games are arranged. It is very noticeable that the children have been more alert as a result of these exercises.

To the treatment of the children has been added radiant heat, and in certain types of cases, ultra-violet rays. It is yet too early to give any information on the results of artificial sunlight treatment on these cases.

The work of the Remedial Gymnast and her assistants may be summarised as follows:—

(1) Number of electrical treatments given...	3,087
(2) Number of treatments given by Swedish remedial exercises	3,038
(3) Number of treatments given by masseuse	7,962
(4) Number of treatments given by artificial sunlight	159
Total	14,246

The number of different treatments given is a big increase on the previous year, and in order to cope with the work one member of the staff became a full-time officer.

Plaster splints were made in 20 cases, and the number of consultations given by Mr. Harry Platt, F.R.C.S., was 504, the number of operations carried out by Mr. Platt was four.

Those children who were not under the care of Mr. Platt have been examined and classified by Mr. Telford, F.R.C.S., and these number 88.

At this school Mr. Telford carries out the work just commenced under the Orthopædic Scheme, and his report on the matter will be found under the heading of Orthopædic Clinic on page 36.

Week-end, Holiday and School Camps.

Approximately 5,300 children attended the week-end and holiday camps during the summer months and all were medically inspected prior to departure. In addition to this, the School Medical Officer arranges for the medical inspection of hundreds of children sent to camp by voluntary organisations.

From these examinations many cases are found which require treatment and this is usually carried out at the school clinics. Absolute general cleanliness is insisted upon. It is now well-known that the presence of vermin or nits in the hair means exclusion and the attendance at camps has been of great assistance in dealing with uncleanliness generally. It is, however, very gratifying that very few children need to be prevented from going to camp for this reason.

Physical Training.

Mr. Ernest Major, the Superintendent of Physical Training, makes the following report in connection with this part of school work.

Physical education in its widest sense includes not only systematic physical exercises, but also games, swimming and dancing. In the Elementary Schools of Manchester 100 minutes weekly is the minimum amount of time which must be devoted to Physical Education, and in most of the senior departments organised games and swimming are taken in addition to physical exercises in accordance with the Board of Education "Syllabus of Physical Training."

During the year 1927 probably the most important development has been the introductions of Teachers' Courses in school hours. As many teachers have not had an opportunity of attending refresher courses since the Syllabus was issued in 1919, the courses are supplying a long-felt need.

Teachers' Courses.

Three district lecture-demonstrations have been held for Head Teachers, and it is proposed to continue these until all the districts of the City have been covered. 150 Head Teachers attended the demonstrations.

Four Courses, each of 10 half-days, were held for men teachers during September. 140 men from 80 departments attended.

The value of intensive courses of this kind is reflected in the enthusiasm and confidence with which those concerned afterwards conduct the Physical Training of their own classes at school.

Swimming.

Until 1927 the organisation of swimming instruction was in the hands of the Baths Committee. This year the Education Committee undertook this organisation in close co-operation with the Baths Committee. Summer and winter time-tables were prepared, the number of children attending at any one time was limited to a maximum of 40, and five qualified swimming instructors were appointed. Life Saving Classes were formed and Land Drill taught in many schools.

During school hours children are admitted to the baths free of charge, and during summer 19 baths are used. The following figures show the number of visits paid to the baths by boys and girls in school time during the year :—

Boys	199,936
Girls	42,920
TOTAL	242,856

A large number of scholars also visited the baths out of school hours, paying for admission as the following figures show :—

Boys	128,868
Girls	21,378
TOTAL	150,246

The Baths Committee held the following tests during the year :—

Boys.		*Girls.*	*Total.*
500 yards.	200 yards.	200 yards.	100 yards.
330	334	49	67

83 awards were also granted as a result of tests in Life Saving.

883 free presentation tickets were given to school children who passed the necessary tests during the year.

The Schools' Swimming Association also awarded the following certificates during the year :—

Boys.		*Girls.*
283	257 yards.	343
490	50 yards.	155
372	100 yards.	—

ORGANISED GAMES ON PUBLIC PARKS AND RECREATION GROUNDS.

As in previous years, considerable use was made of the Parks and Recreation Grounds and the Parks Committee again gave every facility, arranging for the marking of pitches and storage of equipment. The Education Committee hired a number of fields, and arrangements were made for the transport of children from congested areas to playing fields.

All the necessary games equipment was provided by the Education Committee.

DANCING.

Folk and National Dances are taught in many girls' and mixed schools. A large number of teachers have attended courses arranged by the Manchester Branch of the English Folk Dance Society.

TEACHERS' PHYSICAL TRAINING AND GAMES CLUB.

The Women Teachers' Games Club met weekly during the winter for games and dancing.

A Men Teachers' Gymnastic Club was formed in October as a result of the day-time courses, and met weekly at the Y.M.C.A., where there is an excellent gymnasium and swimming bath. There are 180 members, including both Head Teachers and Assistants. These clubs are self-supporting and are governed by the teachers themselves.

OUT OF SCHOOL ACTIVITIES.

These notes would be incomplete without a reference to the very valuable services rendered by many men and women teachers out of school hours for the physical welfare of school children. For many years a Schools' Athletic Association has been in existence and has organised Football, Cricket, Net Ball, Captain Ball, Sports and Swimming Associations. To show something of the work of these Associations the following extracts are quoted from the reports of the various Secretaries :—

Football Section.—Honorary Secretary, Mr. Haynes, Birley Street School. This section enjoyed a very successful season. In addition to the various League Matches, a team representing the town played in the County Cup and English Schools' Shield Matches.

Swimming Section.—Honorary Secretary, Mr. Holland, Alma Park School. During the year 1927 the Swimming Section has increased its membership to over 120 departments. Seven District Galas were held, and the Annual Gala took the form of a "Final" Gala, each event being made up of the winners of the District Gala events. In October, a team of boys and a team of girls met teams of London children in a competition organised by the London Schools' Swimming Association. The Manchester teams succeeded in defeating the London teams.

Cricket Section.—Honorary Secretary, Mr. Thomas, Wesley Street School. 104 schools competed in 20 leagues. Elysian Street School won the championship for the third time in nine years.

The team chosen to represent Manchester in the Lancashire County Competition was defeated in the final by Todmorden. This is only the second defeat in the Final Match in six years.

Sports Section.—Honorary Secretary, Mr. Leaver, Birley Street Central School. The 34th Annual Sports was held on July 13th. There were 1,550 entries. The Relay and Team Races were keenly contested, and excellent times were recorded.

Net Ball Section.—Honorary Secretary, Mrs. Watling, Ardwick Municipal School. 40 schools affiliated to the Net Ball Section during the year.

The fact that the competition again took the form of friendly leagues did not in any way detract from the keenness and enthusiasm of the games which preceded the Knock-out Competition, for which 27 schools entered. Elysian Street School for the second time since 1925 won the trophy.

A Winter League has been formed and 22 schools have joined.

Captain Ball Section.—Honorary Secretary, Miss Lightfoot, Birley Street Girls' Central School. Two divisions—junior and senior—were organised during the summer, and though the number of entrants has not increased very considerably, it is evident that as a summer game Captain Ball still holds a favourable position. There were six schools in the Senior Division, which consists of players drawn from Central Schools only, and nine schools in the Junior Division.

(Signed) ERNEST MAJOR,
Superintendent of Physical Training.

January, 1928.

Provision of Meals.

The following are the statistical particulars with regard to the provision of meals during the past year :—

	Cases.	*Children.*
Applications granted (new cases)	690	1,766
Applications refused (new cases)	15	30
Total number of Applications (new cases)	705	1,796

The number of *individual children* fed during the period was 4,739. These were fed during the undermentioned periods :—

One month or less	230
More than 1 but less than 2 months	254
More than 2 but less than 3 months	320
More than 3 but less than 6 months	851
More than 6 but less than 12 months	1,055
Twelve months	2,029
TOTAL	4,739

Classification of the parents of the children who received meals during the year :—

In receipt of Parish Relief	851
Labourers	752
Widows and Widowers	224
Families deserted by the Father	35
Parents legally separated	39
Hawkers, Out-workers, etc.	174
Skilled Artisans	373
Warehousemen and Clerks	39
Army Pensioners	173

The number of Centres in operation during the year was 24.

The total number of meals served was 573,033.

In addition 51,185 meals were served to children in attendance at the Special Schools.

Co-operation of Parents.

The co-operation of parents is of paramount importance to the work of the School Medical Department and it is a source of great satisfaction that parents, as a rule, are most willing to co-operate. To secure their co-operation it is necessary that they should understand what is required of them, and the time spent in explaining how they can be of assistance to their children is amply repaid. One section of the work may be quoted especially to illustrate this.

As mentioned in last year's reports, the Committee appointed a specially qualified nurse to give instructions in remedial exercises to children suffering from minor deformities. As it is impossible to see children daily, the co-operation of the parents is necessary in order that they may know what is to be done, and how the various exercises should be carried out. Before exercises are commenced, the parent is asked to attend with the child at a given centre. Here the examining doctor explains the nature of the deformity and why the exercises are advised. The Nurse then demonstrates the exercises and the patient carries them out under supervision until both the child and the parent know what is required. The children are seen every two or three weeks, and the Assistant Medical Officer in charge of this work is highly satisfied in most cases by the manner in which the given exercises are persevered with and by the progress made. Without the cordial co-operation of the parents much of the usefulness of this work would be nullified.

All School Medical Officers are aware of the many ways in which parents can assist and when such assistance is cheerfully given the work of the Medical Officer is considerably lightened and the result desired more easily attained.

Co-operation of Teachers.

Much has been written on the co-operation of the teachers and their assistance cannot be valued too highly. It is not necessary to enumerate the many ways in which the teachers can be of assistance to the School Medical Officer and the child, but the Chief School Medical Officer thankfully acknowledges the valuable assistance he has received from them during the past and previous years.

Co-operation of Attendance Officers.

Co-operation with the School Attendance Officers continues to be of great service to both departments with resultant benefit to the child. Co-operation between the two Departments has been developed to the fullest extent and each readily co-operates with the other on all questions affecting the welfare of the school child.

Co-operation of Voluntary Associations.

The Voluntary Charitable Organisations in the city continue to be of great assistance to the School Medical Officer in providing treatment for children who cannot be otherwise dealt with.

The Children's Invalid Aid Association, the Surgical Aid Association, the City League of Help, and the Police Aided Association have all given their assistance when required.

These associations also refer cases to the School Medical Officer for attention, and these materially assist him to provide as complete as possible a record of afflicted children.

Blind, Deaf, Defective, and Epileptic Children.

Mental Deficiency.—In the last month of 1927, an Act passed through Parliament amending in certain important particulars the Mental Deficiency Act of 1914. Two of the alterations made are of practical significance to the Certifying Officers under this Act and the Education Act of 1921.

In the first place the definitions of the four recognised classes of defective—the idiot, the imbecile, the feeble-minded, and the moral defective—have been so changed that it is no longer necessary to obtain evidence of the existence of the defect "from birth or from an early age." The interpretation of the words "early age" has always been ambiguous, for while many authorities have held that it should be regarded as covering the whole of the time during which a child's mind is developing, there has always been a doubt whether such a view would be legally upheld. In the amended Act these words are deleted, and there is a supplementary definition of mental defect in general as a "condition of arrested or incomplete development of

mind existing before the age of 18 years." In examining defective children the difficulty was one which up to a few years ago only occasionally arose, for generally evidence was obtainable of the child's late physiological development, as, for instance, in speech and walking. But more recently great difficulty has arisen in dealing with cases of children presenting indubitable signs of mental defect, but dating only from an attack of Encephalitis Lethargica, which in some cases had occurred at a relatively late age. In another section of this report will be found a statement regarding such cases in the Manchester area.

Other alterations of these four definitions in the new Act are merely trivial, except in the case of the Moral Imbecile, who is now to be more suitably named a Moral "Defective," and is defined as a person "in whose case there exists mental defectiveness coupled with strong vicious or criminal propensities and who requires care, supervision and control for the protection of others." A phrase in the original Act which specified that they must be cases where "punishment has had little or no deterrent effect" has disappeared, presumably in recognition of the fact that punishment, applied even to persons not defective, may, far from being a deterrent, be itself the cause of further delinquencies, and also of the modern tendency to rely upon remedial and reformative measures rather than punishment, particularly in the case of the young. It is regrettable, however, that further much-needed alterations have not been made. It is still specified that in the Moral Defective there exists "mental defectiveness": if this is so, then this separate definition is superfluous: he can be certified under one of the three other definitions of defectives according to the severity of the defect.

The difficulty with this definition reflects the tangle in which the psychology of moral conduct is still involved. The law clings to the idea that moral behaviour is dependent upon moral understanding, or what may be called intelligence or "wisdom" in the region of ethics, and that it is the failure of this intelligence, that is to say, mental deficiency, that makes him morally defective, in spite of the obvious fact that a man may be of the very highest intelligence and morally a scoundrel. A more correct modern view is to look upon mental life as having two aspects, that of intelligence and that of character, to recognise that defect may occur in one or other or both, and that character defect is not necessarily due to defect of intelligence. If that were generally accepted, the separate class of Moral Defectives could then be omitted.

In the actual work of certification the cases that give rise to difficulty are children who show marked tendency to behaviour of anti-moral type, but who are obviously or on examination of almost

normal intelligence, although they may be somewhat backward in school knowledge. Within recent years a larger number of this type of child have been referred to this department for mental assessment by teachers, and not infrequently by the Magistrates of the Children's Court. The adequate examination of these children demands much care. It is seldom, of course, that the possibility of certifying a child as a Moral Defective is seriously considered: apart from the fact already suggested that the definition of this class is unsatisfactory, it is not desirable that children of the developing ages should be so certified (with the possible exception of a few cases of post-encephalitis lethargica). If in addition he is not mentally (in the usually accepted sense) deficient, then he is not certifiable at all under the M.D. Acts, and the case must be investigated as one of ordinary Juvenile Delinquency, the causes of which in personal qualities of character, excessively strong instincts, defective rational control, mental conflicts, inferiority and other complexes, or in environmental conditions at home and elsewhere, require careful enquiry, if any remedial treatment likely to prove efficacious is to be discovered.

A further important alteration in the Act is that in future it will be possible to certify children discharged from Special Schools not merely for care in an institution or for guardianship, but also for supervision. In practice, guardianship has been a dead letter, and unless the defect of a child was so great as to justify his removal to an institution—which implied a low grade of deficiency, or very flagrant vicious propensities—he escaped certification under the Act. Only a very small proportion of defectives in our Special Schools were, as a matter of fact, so certified on discharge, and it was not infrequently the case that children not certified proved social failures, either as being unable to obtain or to keep any kind of work, or as unable to conform to ordinary standards of behaviour demanded by social custom or by law. It will now be possible to certify all cases whose future is thought to be doubtful for supervision, which in Manchester will be carried out by the visitors of the South-East Lancashire Association for Mental Welfare. Such supervision has for a time been unofficially carried out by arrangement with the Education Committee, but this now becomes a recognised legal procedure and marks a distinct advance in the care of the Mentally Defective in their after-life, and makes it easier to ensure their admission to institutions at a later age, should their behaviour make this policy necessary.

Cripples.—The feature of the past year to be recorded is the establishment of an Orthopædic Clinic at the Lancasterian School, under the care of Mr. E. D. Telford, F.R.C.S., assisted by Mr. Harry Platt, F.R.C.S. Mr. Telford has for many years acted as Surgeon to

the Residential Cripple Schools at Swinton and Parkfield, but will now, with Mr. Platt, select cases for treatment at the Day Cripple School as well, and superintend the treatment. In addition, they will see and direct treatment of cases either attending other schools or attending none. Closer co-operation with the hospitals will become possible under this new arrangement.

Nursery Classes.

All the Nursery Classes in the Elementary Schools received a medical examination during the year, and the necessary re-inspections were carried out, and any child found to be suffering from disease or defect which could be treated at a School Clinic was given an opportunity to attend.

These classes also received three inspections by the nurses during the year in regard to uncleanliness.

The number of children examined was some 300 greater than in the previous year.

The percentage of children found to require treatment was about 2 per cent. less than the previous year, but as the figures are not large no safe deduction can be made.

The findings of medical inspection are much the same as in the earlier years, and are mainly confined to skin diseases, eye diseases, and affections of the nose and throat.

There have been no outstanding epidemics amongst the Nursery Class children during the year, but it was found necessary to close the Nursery School at Shakespeare Street on account of an outbreak of measles.

Secondary Schools.

The medical examination of Secondary School students takes place as follows:—

(*a*) As soon as possible after admission to school.
(*b*) During the year in which they attain their 12th birthday.
(*c*) During the year in which they attain their 15th birthday.
(*d*) Special examinations as required.

The whole of the Secondary Schools had medical inspections on the lines indicated above, and the girls were examined by a Lady Medical Officer. The extended schedule of medical inspection was used for all students of 14 years of age upwards.

All treatment is obtained privately unless a request is made to have treatment at a school clinic. All such cases were treated during the year, and the requests for clinic treatment have been much greater

than in any previous year; particularly is this so in regard to correction of errors of refraction. There is a distinct advantage in this respect, as many of the students have received prescriptions for glasses whilst scholars in the Elementary Schools, and as the records of previous visual examinations are available, the history has been useful.

There is a distinct drop in the percentage of students found to require treatment, it being 23.6 per cent., as against 31.8 in the previous year. The numbers medically inspected were approximately 400 more than in the year 1926.

Defective vision still continues to be the main cause for treatment, and affections of the nose and throat are also fairly high in number.

A much greater number of students were found to have spinal curvature than in the previous year, but these were of a minor type, and were referred for treatment by remedial exercises.

Day Continuation and Junior Technical Schools.

There were 1,086 students in attendance at the Day Continuation and Junior Technical Schools medically inspected last year as against 514 the previous year.

For many reasons it was not found possible to conduct a medical inspection in the whole of the schools, but the amount of inspection accomplished was double that undertaken in the year 1926.

The number of students found to have disease or defect which required treatment was 19.8 per cent. as against 23.9 last year. The numbers examined in 1926 were small and could hardly be considered sufficient for comparative purposes, but in reviewing the findings of the medical examinations two points stand out:—

(1) The greatly increased number who were found to be suffering from defective hearing; and
(2) The number suffering from deformities "other forms" who were referred for treatment.

The latter conditions have possibly been brought into prominence because treatment is now available by the appointment of a Nurse for demonstrating remedial exercises. In previous years this type of defect has been simply noted on the medical schedule and was not considered of sufficient gravity to place in the columns "referred for treatment."

As mentioned in another part of the report, it must be accepted that the numbers referred for treatment will increase as additional forms of treatment become available. This is so with regard to treatment by artificial sunlight, and apparently the same applies to cases which are likely to benefit by a course of remedial exercises.

In order to verify this assumption, the medical schedules for the year 1926 have been examined. The total number of cases of minor deformity noted on these schedules is 83, but they were almost all of such a nature that treatment was not indicated.

Those students found to require treatment still obtain it privately, but occasionally requests are received for treatment to be given at a school clinic, and these are generally in regard to a prescription for spectacles. All such cases have been given school clinic treatment.

Employment of Children and Young Persons.

This branch of medical examination continues to increase each year. During the past twelve months 993 children were medically examined to enable them either to perform in places of public entertainment or to be employed out of school hours. The examinations are conducted at the Central Clinic each Saturday morning. Out of the total 128 were girls applying for licences to perform in places of public entertainment.

The defects found amongst these children were as follows:—

Uncleanliness	9
Skin Disease	21
Eye Disease	18
Defective Vision (not including squint)	110
Squint	4
Ear Disease	16
Nose and Throat Disease	20
Diseases of Heart and Circulation	12
Lung Disease	4
Nervous Disease	1
Deformities	5
Miscellaneous conditions	19

Of the children found to have disease or defect requiring treatment six were rejected. In the other cases certificates on probation were issued until the defects observed were satisfactorily treated. There is very little pressure needed to induce parents to seek treatment for these children, and the school clinics are used extensively.

In addition to the work involved in their original examinations 159 re-inspections were made of the cases before the unrestricted medical certificate was issued. If prompt attention is not paid to treatment even the probationary certificate is withdrawn until the conditions have been complied with, and a threat of this action is usually sufficient to secure the desired result.

Parents' Contributions towards the Cost of Medical and Dental Treatment.

The scheme of parents' contributions is on the voluntary basis, and the last year shows an increase in the amounts contributed compared with the previous year.

The amount under the heading of "School Clinics" includes parents' contributions for X-Rays treatment for ringworm and other skin diseases, operative treatment for adenoids and enlarged tonsils and treatment by ultra-violet rays. The installation for the last-named has only been available for about ten weeks.

	£	s.	d.
Amounts collected at School Clinics	356	7	10
Parents' contributions towards the provision of Spectacles	168	14	3
	£525	2	1

In addition to the above must be added the payments made by parents who have children resident at the five Residential Schools. This amount for the financial year ended 31st March, 1928, was £2,350, thus making a grand total of parents' contributions towards the cost of medical treatment of £2,875 2s. 1d. At Soss Moss Residential Schools for Epileptics, however, children are taken from outside areas and there is a fixed rate for such children which is paid by the Local Education Authority sending the child and is not included in the amount of £2,350.

Classes for Stammerers.

The classes for stammerers at Shakespeare Street have been continued as in former years.

The particulars of the children attending the classes are as follows:—

	Boys.	*Girls.*	*Total.*
No. on Registers 1st January, 1927 ...	7	3	10
No. admitted during 1927	51	13	64
No. discharged during 1927	49	13	62
No. remaining on December 31st, 1927 ..	9	3	12

Of those discharged, the following are the particulars of the results obtained:—

Apparently Cured	40
Improved	20
Not Improved	2
TOTAL	62

Special Investigations.

The Assistant School Medical Officers who have conducted special investigations during the year and who have made reports are as follows :—

1. Post-Encephalitis Lethargica ..... Dr. Henry Herd.
2. The Fitness of School Boys. The correlation between Pulse and Respiratory Tests ..... Dr. J. G. Woolham and Dr. W. R. Honeyburne.
3. Skin Diseases of a School Clinic ... Dr. Henry Duguid.

Post-Encephalitis Lethargica.

During the year more cases have come to the knowledge of the Medical Officer. A few have had recent attacks of the acute disease : others are cases not diagnosed at the time of the original illness, and only recognised by their sequelæ. Of the 121 cases now known, the majority are still children whose acute attack occurred during the epidemic of the early months of 1924. 41 of these are now over school age and it is becoming increasingly difficult to keep in touch with them. During the year three deaths are known to have occurred.

The figures given below only refer to the more serious sequelæ of the disease :—

	Boys.	*Girls.*	*Total.*	*Percentage.*
Total number	79	42	121	—
Parkinsonian	31	21	52	43
"Moral" Delinquencies ...	13	10	23	19
Marked Excitability	24	8	32	26.4
Mentally Sub-normal ...	28	10	38	31.4

1. Continued observations of cases showing the Parkinsonian syndrome of symptoms demonstrate the truth of what has been generally suspected from the commencement that the symptoms become progressively worse. The early symptoms, described in former reports, are chiefly a curious mask-like expressionless mien, a slight bending forward of the body in standing or walking, a sluggishness of muscular movement shown in such actions as dressing, walking, speaking, eating, a tendency to salivation. The latest stage presents a bedridden helpless patient, unable to feed himself, lying with open mouth and profuse salivation, slow in response to any approach, and responding with an empty grin or an almost inarticulate attempt at speech. The deterioration that takes place is in nearly all cases very gradual—in several cases one can scarcely detect any material change in a year. Some known to us have now been practically bedridden for two years.

It would seem as if at times in some cases there is a stationary period : others, however, steadily grow worse. From what is known of the pathology of the disease, the condition is irremediable. It was noted in a former report that the Parkinsonian symptoms may not develop for a considerable period after the acute disease. So far we have had no case which has developed the condition later than three years after the original attack. It is an important point in prognosis for it seems that no safe opinion that the child will remain free of this possibility can be given until at least three years have elapsed.

2. In the first report made on these cases, written about a year after the commencement of the 1924 epidemic, it was noted that while there appeared to be some loss of mental power, most of the children retained a considerable degree of mental alertness. The passage of time has, however, shown that a definite arrest of mental development may be one of the sequelæ of the disease, and this is particularly marked in the Parkinsonian group, although not uncommon in children who do not exhibit the Parkinsonian syndrome. Thirty-eight of our cases are now mentally subnormal to a degree sufficient to be noteworthy, and the condition of most of these is that of a mentally defective child. The amended Mental Deficiency Act makes it possible now to certify them as such.

In view of the passing into law of this amended Act certain of the severest Parkinsonian cases have been specially examined in regard to their mental condition. Out of 20 examined up to the end of the year 1927, 17 could certainly be now certified as mentally defective. An examination by means of Terman's tests was attempted, except in two cases who were quite unfit. In others only a limited number of tests could be applied owing to their weak condition, and, consequently, the Intelligence Quotients obtained can only be regarded as approximate. Thirteen of the 20 are in residence in the special wards provided in Swinton School by the Manchester Board of Guardians. Eight of these are confined to bed, although all but two can walk around the ward at least once at a time, then usually collapsing. The I.Q.'s obtained ranged from 46 to 67. Several had been able to attend school in the institution when admitted, but had become so weak that this was no longer possible. Others were still attending, but practically making no progress, having no power to concentrate.

The Parkinsonian type of mentally defective—for this will now have to be recognised as a distinct type—contrasts with the ordinary congenital defective in respect that he presents all the outward appearance of an idiot, in the open mouth, foolish, empty grin, and profuse salivation, and yet is usually distinctly in advance of this lowest of all

grades mentally, and classifiable as a low or medium grade feeble-minded person, except where the original attack of disease has occurred very early in life, in which case the child may be an imbecile. This contrast of physical appearance and mental capacity is obviously due to the fact that up to the commencement of the illness he has been normal mentally, and still retains, in greater or less degree, the intelligence then possessed, and also a fair degree of acquired knowledge : he appears, however, to gain little or nothing new, development of intelligence is, in fact, arrested, and there may even be some deterioration. The retention of previous mental power was best shown by a girl, now 15 years old, who was previously to her illness above normal in school work, but is now a typical Parkinsonian case, mostly confined to bed, although able to be up for about an hour at a time. Her I.Q. is about 80, no doubt much below her pre-illness quotient, but she reads intelligently (though slowly), writes sensible letters, and in tests did the "dissected sentence" test of age 12 and the "reversed clock" of age 14. Another boy of 10, with typical open mouth, foolish grin, salivation, and almost inarticulate speech, achieved an I.Q. of 82. This I.Q. is wholly deceptive as an indication of his possible future mental development.

It should be said that it is questionable if much advantage is gained by the opportunity afforded now by the amended M.D. Act to certify these cases for removal to M.D. Institutions. They will there require at least as much attention and nursing as the average idiot, probably more. But the point of importance is that long before the Parkinsonian is certifiable as an M.D. he is physically in a condition which, unless his home conditions are exceptional, makes institutional treatment of some kind necessary : it is only when the discrepancy between his mental age and his chronological age becomes sufficiently great that relegation to an M.D. Home is justified, and it is just this interim period that is as yet inadequately provided for. Even when certification is possible, the only advantage—of somewhat doubtful value—is his transference from one authority to another which has already great difficulty in finding accommodation for certified M.D. cases.

3. So-called "moral" and "excitable" cases should be grouped together, as it seems certain that, whatever the cerebral condition responsible, in psychological terms moral offences are the product of an alteration of temperament which is most accurately described as abnormal excitability, an intense emotional condition which renders its possessor liable to sudden, impulsive acts, *e.g.*, acts of violence with even slight provocation, acts of theft when any article, useful to him or not, presents itself in suitable circumstances—a return, in fact, to the primitive egoism, through failure to develop out of his primitive instincts those sentiments for persons or principles which restrain normal human beings. This appears to be the essence of the "moral defect" alleged in such cases (or in others of similar type but different origin), and not, as is still too readily assumed, a loss or lack of "moral

sense," a term signifying innate or acquired knowledge of right and wrong either in the absolute or relative to the conscience of the time.

Fifty-five cases out of 121 show symptoms of this type of sufficient degree to be worthy of notice, but it must be said that many more display slight traces of this abnormal excitability. It is, apart from the difficulty of sleeping and waking at normal times, the symptom most commonly reported in many different forms of words by mothers.

Cases of this temperamental type do not, as a rule, unless complicated by their also being Parkinsonian, show marked "mental" deterioration, in the usual limited sense in which the word "mental" is incorrectly used. Of five cases of this kind now in residence at Swinton School, all except one have I.Q.'s ranging from 70 to 85, one is mentally defective, but had his attack of Encephalitis at a very early age. All have great difficulty in concentration, owing to their emotional high tension, and school progress is on that account less than their apparent intelligence would lead us to anticipate: two, in particular, were mentally very alert. Further examinations will be made of other cases of this type.

Except in the case of two children of this group, no real improvement has been observed. It is obvious that such cases, like other types of delinquency, require very careful management, and, as a rule, this is not to be found at home. They are a constant source of irritation in the home, and are apt to provoke irritability in return. In the two cases of improvement, there is reason to believe that home management was exceptionally discreet. But two cases do not justify an inference, and the writer is not prepared to give a verdict on the remediability or otherwise of this condition until treatment on the lines that modern psychology suggests has had a serious trial. Meanwhile, the temptation, which is great, to certify them as morally defective, for the sake of securing their admission to an institution where such cases are regarded as hopeless, is one to be resisted.

4. These three are the main types of after-result of Encephalitis Lethargica observed. Short reference must be made to a further type which one is now able to differentiate fairly definitely. When first seen, this type presents symptoms which rather suggest that Parkinsonian symptoms are going to develop. But these do not develop: all that is noted is a marked sluggishness of muscular movement, associated with a mental apathy and inertia, and, in a few, a tendency to melancholia. It appears to be more than a mere debility resulting from the disease, and lasts for a long period. Several of our cases still show signs. Sunlight treatment appears to be of benefit here. One boy in particular showed remarkable improvement in a few months, threw off all his physical sluggishness, and mentally became quite alert.

There are many other sequelæ of the disease of less frequent occurrence and of greater or less importance. Myoclonic movements of considerable severity are found in three of our cases. Stammering and

squint have been occasional results. Peculiarities of breathing, the production of blowing sounds, are not quite rare. Spastic paralysis, usually partial, affecting one or more limbs, is very common, either by itself or along with mental deficiency, and quite a frequent concomitant in the Parkinsonian cases.

Reviewing all the cases and their symptoms, one notes a definite sub-division into two main classes mentally, (1) those whose mental condition is one of sluggishness, inertia, apathy—a slowing down as it were, of response to stimulus, and of mental processes generally; (2) those whose mental excitability is heightened, who show, as it were, a hyper-sensitivity to stimuli. On the one hand, the placid, the ultra-stable; on the other, the emotional, the ultra-unstable. This is not to say, of course, that a stable type, say the Parkinsonian, may not, at times, show irritability, that being probably largely the result of his physical weakness, but the contrast of the two types in general behaviour is obvious enough. This contrast is curiously analogous to that between the two types of mental defectives so readily recognisable —the placid, stable type, slow to respond, dull, heavy, and the unstable, somewhat hysterical type, superficially quick, in which mental seed can flourish only with difficulty because the soil has no depth.

(Signed) H. HERD.

THE FITNESS OF SCHOOLBOYS. (4.)

The Correlations between Pulse and Respiratory Tests.

By Dr. J. G. WOOLHAM and Dr. W. R. HONEYBURNE.

An account of this subject is given under the following headings:—

1. INTRODUCTION.
   - (*a*) The previous investigation.
   - (*b*) The present investigation. (First part.)

     The sample of boys tested includes no boys with heart disease.

2. THE OBJECT OF THE PRESENT INVESTIGATION.

The object is the discovery of the relationship of pulse rates, under different conditions, to a form of physiological efficiency revealed by certain respiratory tests.

3. METHOD OF EXAMINATION.
   - (*a*) The pulse tests.
     - (1) Resting pulse rate.
     - (2) Standing pulse rate.
     - (3) Post-exercise pulse rates.

(*b*) The respiratory tests.

Modified Flack's tests.

(1) Expiratory pressure.

(2) Persistence.

(3) Breath-holding.

(*c*) The physiological assessment.

The combination of the respiratory tests in Woolham's formula to produce the Flack-Woolham indices of physiological efficiency.

4. Results of Tests.

(*a*) Pulse tests.

An example of one boy's records shown in the form of a graph.

The results of the tests of 50 boys, averaged, and shown in the form of a graph.

(*b*) Respiratory tests.

The results of the tests and the products of the Woolham formula are tabulated. See Appendix.

5. The Correlations.

(*a*) The meaning of the symbols used in the list of correlations.

(*b*) The correlation coefficients and their probable errors.

(*c*) The meanings of the correlation coefficients.

6. Conclusions.

The conclusions are given tentatively because the data from the first part of this investigation only are available at present. Later, when we have examined a group of boys with heart disease, we hope to be able to give more definite opinions concerning the value of the pulse tests used.

1. Introduction.

(*a*) *The previous investigation.*

There have appeared already, in Dr. A. Brown Ritchie's Annual Reports, for the years 1923-4-5, three articles dealing with the assessment of the physical efficiency of schoolboys. These articles have dealt with *anatomical* and *physiological* tests and a *method of assessment*, with its application to boys, using a combination of these tests, has been given. The calculations involved in the method are simple when the proper graphs are used; the tests and the assessment may be

completed in a time varying from about 20 to 30 minutes. But mathematical methods are a stumbling-block to many, and short methods of arriving at an assessment are sought. An easy and short method of making a reliable assessment of physical fitness would be a great advantage, but there are limits to the expectation of finding such a method. For instance, the few respiratory tests, given later, test the heart indirectly and involve indirectly a testing of the nervous system by the chemical changes in the blood, during the tests, acting upon the respiratory and other nerve centres. These tests are thus far-reaching in their scope, and good on that account, yet they are not completely satisfactory; anatomical and other tests are needed to obtain fuller information and moreover, knowledge of the past medical history of a subject is an advantage. In writing these articles it has been recognised that, although arrays of figures may be used in such a manner as to give a statistical picture of individuals singly, or *en masse,* it must not be confidently assumed that mathematical expressions are adequate for the statement of biological conditions: there are biological conditions which are not at present expressible by any notation, though the presence of these conditions, as well as their effects and tendencies, are noticeable. It is possible that the average boy, regarded biologically, may not be the same as the average boy, regarded mathematically.

(*b*) *The present investigation.*

The sample. In dealing statistically with a large population of schoolboys possibly a small sample only, conveniently, may be taken and, in this case, a real difficulty may be encountered at the outset of an investigation, in the composition of the sample. For example it was convenient to make this *first* part of the *present* enquiry with a group of 50 elementary schoolboys, taken at random, from a much larger number who had passed medically as fit for street-trading, *i.e.*, light work. This group cannot be regarded as a true random sample representative of elementary schoolboys because:—

1st.—Their ages ranged from 12 to 14 years; average age: 12 years 313 days; standard deviation, ± 209 days.

2nd.—There is a selection by circumstances which induced the boys to seek certificates for street-trading. These circumstances were, mostly, poor economic conditions in their homes. In some cases the homes were undoubtedly good, the boys concerned being well-clad and well fed.

3rd.—There is the medical selection, which the boys successfully passed, before they came to us for examination. This clinical selection ensured what we wanted, that is, that no boy would come to us with an evident lesion of heart or lungs.

4th.—Only Manchester boys were examined.

Other factors besides the above operated selectively; it would be difficult to describe the sample and to say, by a short formula, what the sample truly represents.

The sample does not represent apparently biologically normal elementary schoolboys. Some of the boys in the sample were much more robust than others and we draw attention to the large standard deviation from the average Flack-Woolham index (average: 0.51; stand. dev. ± 0.26) which points to an assortment of physiologically good and less good as being the composition of the sample.

The standard of physical fitness which is required for street-trading—delivery of milk, newspapers, etc.—is not high. Boys who are not physically strong, along with the more robust, are passed for this light work because the medical examiners find that the open-air exercise entailed is of benefit to such boys, as a rule.

However, the sample which we obtained was a useful one for, in it, there were different grades of physiological efficiency and different rates of pulse, which were what we wished to correlate. It must be understood that we do not regard a boy with a Flack-Woolham index (see later) which is, numerically, twice as large as that of another boy as having necessarily twice the efficiency; but we do say that he is much better. Also, the boy with a standing pulse rate of 60 is not regarded as being twice as efficient as a boy with a standing pulse rate of 120, though there may be grounds for the presumption that he is more efficient. Consequently, the correlation co-efficients that we give must be viewed in the light of the above statements.

2. The Object of the Present Investigation.

We set out to find whether the changes in the pulse rate under different conditions were, or were not, related to physiological efficiency in schoolboys; that is, whether or not pulse rate changes in schoolboys could be relied upon as an indication of their condition.

We thought, at first, that we might have a difficulty through the pulse rate being altered by emotional states in the boys coming under our examination, but no evidence of emotion was seen. The absence of emotion is due, perhaps, to the boys having been passed fit medically, previously, on the same morning as that on which we conducted our examination of them; also, these boys are accustomed to school medical examination.

3. Method of the present Examination.

(*a*) *The Pulse Tests.*

The following tests were made of each boy's pulse :—

1. *The Resting Pulse Rate.*

Each boy had been resting in the medical department for some time, and he had been resting horizontally on a couch for five minutes before the resting pulse rate was taken. The total number of beats up to the end of every quarter minute was recorded for a period of three minutes, whilst he still reclined upon the couch; the beats during each quarter minute were obtained by subtracting one record from the next one following in the series.

2. *The Standing Pulse Rate.*

In a similar manner this pulse rate was recorded at quarter-minute intervals for a period of six minutes, which commenced immediately the boy took up a standing posture.

3. *The Post-exercise Pulse Rate.*

Immediately after each exercise was finished the pulse beats were counted and recorded whilst the subject was standing, and the number of beats in every consecutive period of fifteen seconds was recorded during six minutes, in each case.

The exercises consisted of stepping from the floor on to a bench 18 inches high, five times in a quarter minute for one exercise, and 15 times in 25 seconds for the other.

A reproduction of one of the records that have been made is given and this record is shown also, in the form of a graph, under the title Individual Pulse Tests.

Individual Pulse Tests.

The lines marked (*a*) in the records show the *total* number of pulse beats up to the end of every one of the consecutive quarter-minute periods; the lines marked (*b*) show the number of beats during each of the same periods during the tests.

We draw attention to the six-minute total of the (pre-exercise) *standing pulse beats* which is 640 and to the totals of the *post-exercise pulse beats* 638,627, all of which were counted with the subject in the standing position. The total 627 beats is after an exercise of 15 steps in 25 seconds—*lower* after the more strenuous exercise.

Sixteen boys out of the 50 boys tested gave a similar result, that is, their post-exercise total was *lower* than the pre-exercise total.

H.S. Birthday : 5th May, 1914.

School : Mulberry Street,

Examd. : 15th, October, 1927. Hulme, Manchester.

Pulse tests—

(*a*) Totals up to the end of the consecutive quarter-minute periods.
(*b*) Pulse beats during each of the quarter-minute periods.

Resting pulse—											
(*a*)	21,	43,	64,	87,	110,	132,	154,	176,	199,	221,	243,	264
(*b*)	21,	22,	21,	23,	23,	22,	22,	22,	23,	22,	22,	21
Standing pulse—											
(*a*)	25,	48,	73,	101,	128,	155,	183,	210,	235,	261,	288,	314
(*b*)	25,	23,	25,	28,	27,	27,	28,	27,	25,	26,	27,	26
(*a*)	341,	369,	395,	428,	449,	477,	503,	529,	558,	586,	613,	640
(*b*)	27,	28,	26,	27,	27,	28,	26,	26,	29,	28,	27,	27
Post-exercise pulse ; 5 steps in 15 secs.—											
(*a*)	29,	56,	82,	108,	133,	158,	183,	211,	238,	264,	289,	316
(*b*)	29,	27,	26,	26,	25,	25,	25,	28,	27,	26,	25,	27
(*a*)	343,	369,	395,	423,	450,	477,	504,	530,	557,	584,	610,	638
(*b*)	27,	26,	26,	28,	27,	27,	27,	26,	27,	27,	26,	28
Post-exercise pulse ; 15 steps in 25 secs.—											
(*a*)	31,	59,	85,	110,	133,	156,	181,	206,	232,	257,	284,	310
(*b*)	31,	28,	26,	25,	23,	23,	25,	25,	26,	25,	27,	26
(*a*)	336,	362,	387,	413,	439,	446,	491,	519,	547,	574,	601,	627
(*b*)	26,	26,	25,	26,	26,	27,	25	28,	28,	27,	27,	26

Respiratory tests.

Expiratory pressure : 58 mm. of mercury Persistence time : 25 seconds Breath-holding time : 31 seconds	Flack-Woolham index = 0.22.

(*b*) *Respiratory Tests.*

Flack's Tests modified for Schoolboys.

The following tests were given to each of the 50 boys.

(1) *The Expiratory Pressure Test* (*Symbol for Test : Pr.*)—After preliminary full expiration and inspiration the subject closes his nostrils by finger and thumb. He immediately blows a column of mercury, in a U-tube, as high as he can send it by steady pressure of blowing. The height of the column is recorded in millimetres.

(2) *The Persistence Test* (*Symbol : Per.*) *Woolham's modification.*—The subject uses the same instrument as in the first test and after preliminary expiration and inspiration he closes his nostrils as before. He blows the column of mercury to *half the height* recorded in the previous test and holds it, for as long a time as possible, at that height. The time is recorded in seconds.

(3) *The Breath-holding Test* (*Symbol : Br.*).—After the preliminary expiration and inspiration the subjects holds his breath until he can hold it no longer. The time is recorded in seconds.

The boys are encouraged to do their best in the tests and if necessary a second trial is given. If obtained, a higher result, not a lower, is recorded.

(c) The Physiological Assessment.

The results of the respiratory tests were combined for each boy and, to compensate for his age, the result of the combination was modified by a factor. In this manner, using a formula, indices of a form of physiological efficiency were produced and these indices were used as standards.

The following formula is the one that was used; it is applicable to boys ranging from 9 to 19 years of age :—

Woolham's formula for boys.

$$\frac{\sqrt{Pr.} \times Per. \times Br.}{1000 \times \frac{(Age\ in\ Yrs.)}{4}^{1.807}} = \text{The Flack-Woolham index.}$$

On a previous page, at the foot of the pulse tests records of H.S., aged 13 years 5 months, there will be found the results of his respiratory tests. By the substitution of these results for the symbols the formula becomes—

$$\frac{7.6 \times 25 \times 31}{1000 \times 27.2} = 0.216 = \text{F.W. index. } 0.22.$$

The number 27.2 in the denominator is found by the use of a ready reckoner. It is a handicap for age. The formula may be solved easily by a slide rule.

There are further references to the formula in the Annual Report for the year 1926, of Sir George Newman, the chief Medical Officer of the Board of Education. On page 158 of his report it is stated " that the Flack-Woolham methods enable us to select, with more precision than has been possible hitherto, those who, although showing no definite pathological lesion, are of subnormal fitness and are in need of special medical observation. The value of the Flack-Woolham tests is proved sufficiently to justify their being applied in wider fields of research."

We may say that we have used the Flack-Woolham indices as standards of a form of physiological efficiency because the respiratory tests, from which they are derived, though not the same, are similar to the Air Force tests used by Flack and others, with valuable results, in the assessment of physical fitness; also, because the formula having been tested upon boys placed in different grades of fitness, by clinical examination, has given fairly consistent results.

J. V. A. Simpson, M.D. (Lond.), D.P.H. (Camb.), in his article on "Schoolboys and Rowing," in the Annual Report, Torquay Education Authority (1925) gives the following table of F.—W. indices:—

Clinical Examination	*Physiological Examination Flack-Woolham indices, before rowing*			*Physiological Examination Flack-Woolham indices, after rowing 3 months' course*		
Boys selected	*Highest*	*Lowest*	*Average*	*Highest*	*Lowest*	*Average*
23 boys fit for regular rowing	0.77	0.15	0.38	1.38	0.16	0 61
9 boys fit for intermittent rowing	0.52	0.16	0.30	0.63	0.26	0.39
				After boating (no rowing)		
10 boys unfit for rowing (coxswains)	0.49	0.14	0.29	0.64	0.16	0.31
13 boys attending Day Open-Air School ...	0.42	0.03	0.19	...	...	...

These boys were elementary school boys.

It is interesting to note, in the above table, how the values of the indices become lower in accordance with the lower grades of physical fitness, as estimated by clinical examination, and to see how the values of the indices improve after the course of rowing exercises.

The 13 invalid boys, mentioned above, attended the Day Open-Air School on account of suspected or quiescent tuberculosis, etc. One boy gave an index of 0.42 (within the normal range for elementary schoolboys, 0.4 to 0.49); he was a tuberculosis contact with no declared disease. Another boy with an index of 0.39 was a cripple but otherwise healthy. The remaining indices of this group were 0.30, 0.22, 0.22, 0.19, 0.16, 0.13, 0.13, 0.11, 0.11, 0.10, 0.03: they indicate the poor condition of the boys.

The next table is quoted from Lamb and Simpson, "The Assessment of Schoolboys by Air Force tests," in the Proceedings of the Physiological Society, February 18th, 1928, Journal Physiology, Vol. LXV.

	F.—W. indices.		
	Highest.	Lowest.	Average.
Random sample (20 boys), Elementary Schoolboys.	0.73	0.13	0·33

After considering the evidence given above we feel justified in correlating the F.—W. indices with the results of the pulse tests in order to further our investigation.

4. The Results of Tests.

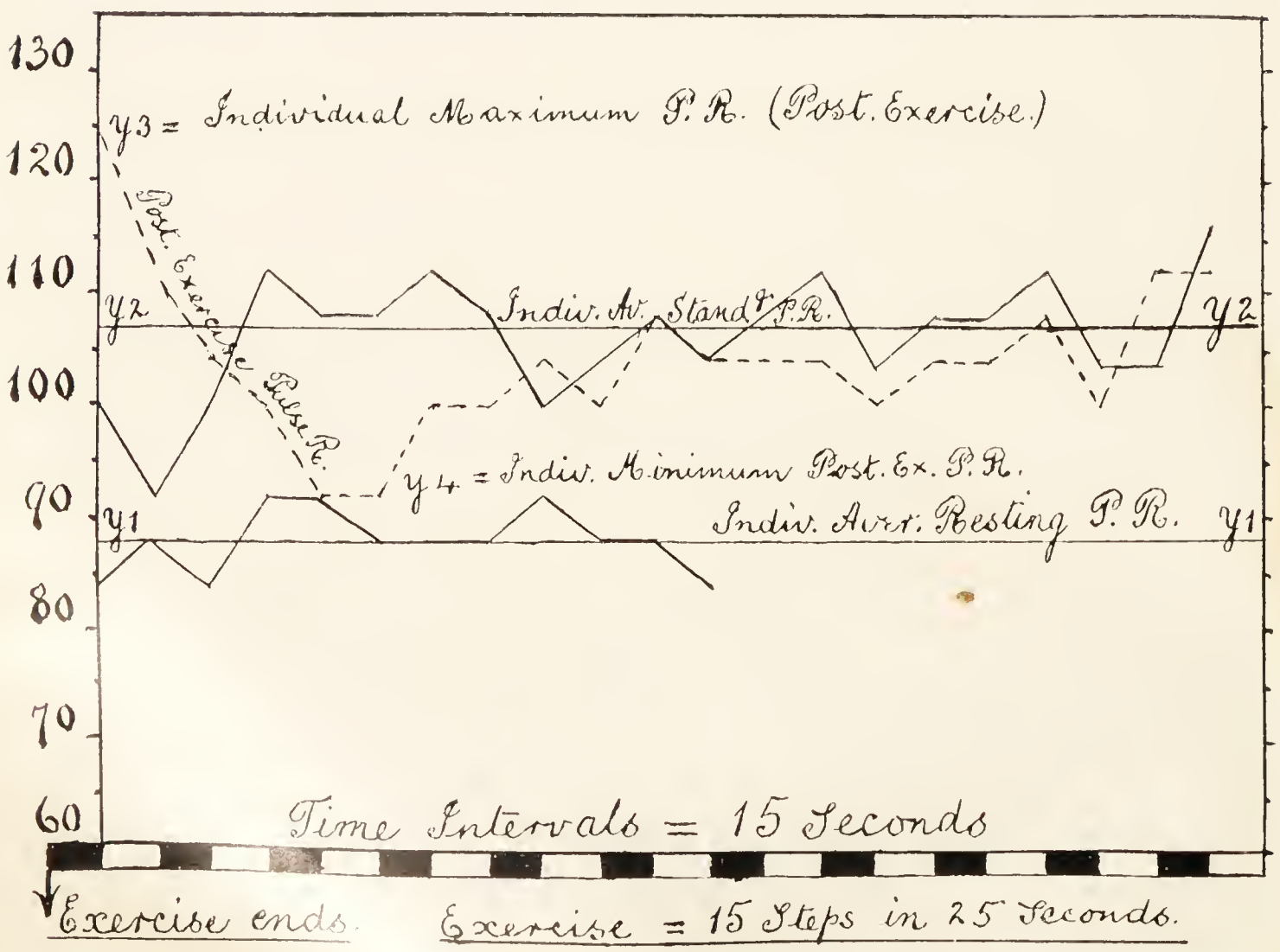
(*a*) *Pulse Tests.*

Individual results.

In the graph below, Fig. 1, there are shown the results of a boy's pulse tests. These results are given, in a table, on a previous page. The graph shows :—

1. That the resting pulse rate is slower than the standing rate.
2. An irregularity of rate, which is usual, in both the standing and the resting pulse rates.
3. That the *total of the post-exercise pulse beats is lower than the total of the pre-exercise pulse beats.* This observation applies to 16 out of the 50 cases.
4. That the post-exercise pulse rate takes 40.5 seconds to fall from its maximum to the level of his average standing pulse rate.
5. That the fall is continued below the average standing rate and,
6. That this level is not reached again until some minutes after the cessation of exercise.

Individual Pulse Tests. (Fig 1.)



Average results.

In Fig. 2 each of the rates, graphed at intervals of quarter of a minute, is an *average* of the pulse rates recorded, for the 50 boys, at the corresponding intervals of 15 seconds.

The standing pulse rate level (Y2) has been found by taking the mean of the 50 individual average standing pulse rates and in a similar manner the resting pulse rate level (Y1) has been obtained.

The graph shows :—

1. That the longer exercise is followed by the higher maximum average post-exercise pulse rate.

2. The time 52.5 seconds (X2) is the average time taken by Y3, the maximum post-exercise rate, to fall to Y2; and this is longer than the time for a similar drop after the shorter exercise.

3. The average times (X4) taken by the two post-exercise pulse rates in falling from the maximum to the minimum are equal to one another.

4. The average times (X5 = 240 seconds) taken by the post-exercise pulse rates to return to the average standing rate (Y2) are nearly equal, though one exercise is longer than the other.

5. After the longer exercise each boy has (on the average) in the total of the six minutes post-exercise period only 8.5 beats more than in the total of the six minutes pre-exercise standing period. This approximate equality of the totals is explained by the fact that in every subject but one, after the 15 steps exercise, the pulse rate falls below (y2), his own average standing pulse rate, before it regains this level.

Average Results of Pulse Tests.

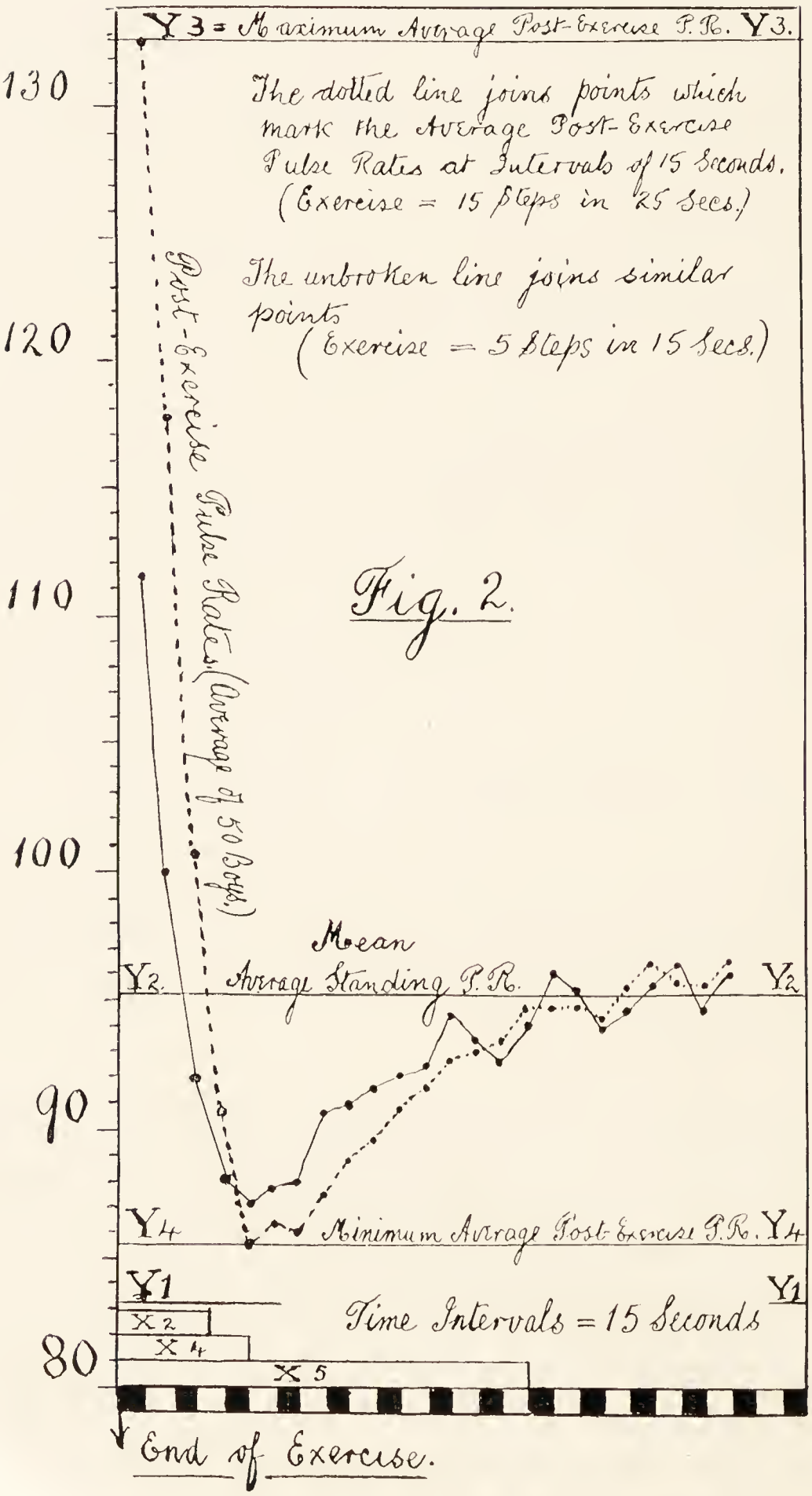


Fig. 2.

(*b*) *Respiratory Tests.*

2. Individual Results.

The list of indices below was obtained from the results of the respiratory tests of the 50 elementary schoolboys who previously had had their pulse rates counted.

Flack-Woolham indices.

Low													*High*
	0.21	.30	.40	.55	.64	.79	.80	.93		1.12			1.43
	0.21	.30	.41	.58	.64		.82			1.12			
	0.22	.31	.41	.58	.67		.82						
	0.27	.32	.42		.69		.83						
	0.28	.33	.42				.88						
	0.28	.34	.42										
	0.29	.36	.43										
	0.29	.36	.46										
	0.29	.38	.46										
	0.29	.38	.48										
		.39	.48										
		.39											
0.	10.	12.	11.	3.	4.	1.	5.	1.	0.	2.	0.	0.	1.

2. *Average results.*

The arithmetical average of the above indices is 0.51 with a standard deviation from the average of ± 0.26. The grade (0.40 to 0.49) was found to be the average grade of a larger number of elementary schoolboys, taken at random, in a previous investigation. In the list above there are 17 above the grade (0.40 to 0.49), there are only 11 boys in this grade, and 22 below it. It will be noticed that the list is a frequency distribution which is not completed with very low-grade boys. This is because we examined selected boys who were not likely to be placed in very low grades. The grouping shown is not an unexpected result from the sample examined.

The Correlations.

(*a*) *The Meaning of the Symbols used in the List of Co-efficients.*

y1 = the average of an individual's resting pulse rate.

y2 = the average of an individual's standing pulse rate.

y3 = the maximum of an individual's series of post-exercise pulse rates (recorded at $\frac{1}{4}$ minute intervals) after 15 steps in 25 seconds.

y4 = the minimum of the same series of rates.

Y1 = the mean of the average resting pulse rates of 50 boys.

Y2 = the mean of the average standing pulse rates of 50 boys.

Y3 = the maximum of a series of averages taken of the corresponding $\frac{1}{4}$ minute records of the 50 boys, after the exercise of 15 steps in 25 seconds.

Y4 = the minimum of the same series of averages.

x2 = the time taken for y3 to fall to y2.
x4 = the time taken for y3 to fall to y4.
x5 = the time taken for y3 to fall below y2 level and regain it.

X2=the time taken for Y3 to fall to Y2.
X4=the time taken for Y3 to fall to Y4.
X5=the time taken for Y3 to fall below Y2 level and regain it.

The time in all cases is reckoned from the cessation of exercise.

Pr. = the expiratory pressure in mm. of mercury.
Per. = the time in seconds of holding *half the height* of the exp. pr. column.
Br. = the time in seconds of the breath-holding period.
T. = the total of pulse beats during standing period of 6 minutes before exercise.
Tl. = the total of pulse beats during standing period of 6 minutes after exercise, 15 steps.

(*b*) *The List of Correlation Co-efficients.*

1. The Correlations between Pulse rates and F.W. indices.

y1 F.W. = -0.34 ± 0.08 = Resting pulse rates correlated with F.W. indices.
y2 F.W. = -0.44 ± 0.08 = Standing pulse rates correlated with F.W. indices.
y3 F.W. = -0.11 ± 0.09 = Max. post-ex. p.r. (15 steps) correlated with F.W. indices.
y4 F.W. = -0.27 ± 0.09 = Min. post-ex. p.r. (15 steps) correlated with F.W. indices.

2. The Differences between Pulse rates correlated with the F.W. indices.

(y3 − y4) F.W. = $+0.19 \pm 0.09$ = Differences between max. and min. post-ex. p.r. correlated with the F.W. indices.
(y3 − Y2) F.W. = $-.12 \pm .09$ = The individual rises of the post-ex. p.r. above the mean average stand. p.r. correlated with the F.W.
(Y2 − y4) F.W. = $+.26 \pm .09$ = The individual dips of the post-ex. p.r. below the mean average stand. p.r. correlated with the F.W.
(y3 − y2) F.W. = $+.10 \pm .09$ = The individual rises of the post-ex. p.r. above the individual average stand. p.r. correlated with the F.W.
(y2 − y4) F.W. = $+.14 \pm .09$ = The individual dips of the post-ex. p.r. below the individual average stand. p.r. correlated with the F.W. indices.

3. The times taken by Pulse rate changes correlated with the F.W. indices.

x2 F.W. $= -.09 \pm .09$ = The times taken by the maxima of post-ex. p.r. to fall to the individual average stand. p.r. correlated with the F.W. indices.

x4 F.W. $= +.14 \pm .09$ = The times taken by the maxima of the post-ex. p.r. to fall to the individual minima of post-ex. p.r. correlated with the F.W. indices.

x5 F.W. $= +.20 \pm .09$ = The times taken by the post-ex. p.r. to fall below and regain the individual average stand. p.r. correlated with the F.W. indices.

X2 F.W. $= -.21 \pm .09$ = The times taken by the maxima of the post-ex. p.r. to fall to the mean average stand. p.r. correlated with the F.W. indices.

X4 F.W. $= +.13 \pm .09$ = The times taken by the maxima of the post-ex. p.r. to fall to the average minimum post-ex. p.r. correlated with the F.W. indices.

X5 F.W. $= +.18 \pm .09$ = The times taken by the maxima of the post-ex. p.r. to fall below and regain the mean average stand. p.r. correlated with the F.W. indices.

4. The Totals of Pulse beats correlated with the F.W. indices.

T1 F.W. $= -.23 \pm .09$ = The totals of beats, after 15 steps exercise, correlated with the F.W. indices.

(T − T1) F.W. $= -.02 \pm .10$ = The differences between the totals of beats (before, and after, 15 steps exercise) correlated with the F.W. indices.

5. The Correlation between the different Times taken by Pulse rates to change.

x2 x4 $= +.75 \pm .04$
x2 x5 $= -.51 \pm .06$
x4 x5 $= +.14 \pm .09$
x2 (x4 − x2) $= -.06 \pm .10$
x2 (x5 − x2) $= -.54 \pm .06$
(x4 − x2) (x5 − x4) $= +.21 \pm .09$

6. The Correlations between Pulse rates.

y1 y2 $= +.76 \pm .04$
y2 y3 $= +.57 \pm .06$
y2 y4 $= +.89 \pm .02$

7. Pulse rate differences correlated.

$(y3-Y2)\,(Y2-y4) = -0.55 \pm 0.06$
$(y3-y2)\,(y2-y4) = -0.17 \pm 0.09$

8. The Respiratory tests correlated with the F.W. indices.

Pr. F.W. $= +.22 \pm .09$
Per. F.W. $= +.91 \pm .02$
Br. F.W. $= +.88 \pm .02$

9. Other Correlation Co-efficients.

y2 Br. $= -.30 \pm .08$
Per. Br. $= +.69 \pm .05$

(c) The Meanings of some of the Correlation Co-efficients.

1. The correlation between the resting pulse rate and the F.W. index is negative and there is a negative higher correlation between the standing pulse rate and the index. This means: the slower the rate, resting or standing, the better the index; but the co-efficients do not mean that a slow pulse rate is always necessary for efficiency in the performance of the respiratory tests.

2. There is no significant relationship between the respiratory efficiency, revealed by the tests, and the time of recovery of the post-exercise pulse rate from its maximum level to the level of the *individual's* standing pulse rate, after the cessation of the 15 steps' exercise.

3. There is, perhaps, a relationship between respiratory-test efficiency and the time of recovery from the individual post-exercise maximum rates to the *mean* average standing rate, after the 15 steps' exercise: the steeper the plunge to Y2 the better the F.W. index.

4. But the depth of the portion of the plunge, which is below Y2, has more significance, though not much more, as an index of F.W. efficiency.

5. The number of beats during the 15 seconds immediately after exercise is not significant.

6. The total of the beats during the six minutes, after the 15 steps' exercise, may have a slight relationship to the indices.

7. If the individual average resting pulse rate is high (low) the individual average standing pulse rate has a great tendency to be high (low), but there is a less degree of tendency for the individual maximum of the post-exercise pulse rate to be high (low) when the individual average standing pulse rate is high (low).

8. When the individual average standing pulse rate is high (low) the dip of the post-exercise pulse rate below Y2 tends to be small (large).

9. The Persistence test is the most important of the respiratory tests which were used, being followed in importance by the Breath-holding test which is nearly as good.

6. Conclusions.

Our conclusions are given tentatively on account of the reasons previously stated and because we have not worked with large numbers; moreover, the indices which we have used as standards point to only a part, not the whole, of physiological fitness. The teachings of the correlation co-efficients given above are limited, and they point to the need of further investigation. For example, the time taken by the drop, after exercise, from the quick pulse rate to the steady pulse rate of standing, in young adults, has been used often, amongst other tests of physical efficiency, with a certain degree of confidence; but an almost similar test, in boys, shows no significant relationship to efficiency as measured by the F.W. standards.

It appears that the resting pulse rate is a fair index of efficiency, but the standing pulse rate is a better one. The latter rate, after a period of rest, is a better test than any of the other pulse tests used in this investigation, taking the F.W. indices as standards.

It must be noted that these conclusions apply to boys only and, strictly speaking, to boys aged 12—14 years, not affected by heart disease.

We are making the second part of our investigation along similar lines but with boys who have heart disease.

APPENDIX.

Details of Pulse Tests, etc., of 50 Elementary Schoolboys, aged 12—14 years.

1	2	3	4	5	6	7	8	9	10
Resting Pulse rate; individual averages	*Standing Pulse rate; individual averages*	*Pulse rate immediately after 15 steps exercise*	*Difference between Maximum and minimum pulse rates after 15 steps exercise*	*Column 6 Totals subtracted from 6-minute totals of standing pulse rate*	*Total Number of beats during 6 minutes after 15 steps*	*Per. mm. of Hg.*	*Per. secs.*	*Br. secs.*	*F.W. index*
86.3	104.7	144	48	+37	647	65	31	45	0.41
91.7	105.3	156	56	+51	669	55	35	41	.48
91.0	106.7	128	44	—59	573	88	25	45	.39
95.3	102.3	120	36	—42	573	70	25	35	.29
77.0	100.0	132	56	— 8	574	78	31	58	.64
84.0	97.3	136	56	—20	558	80	52	59	1.12
78.7	94.0	120	48	—53	509	85	41	52	.67
91.7	106.7	140	56	—48	582	95	43	47	.82
108.0	116.0	160	40	+60	758	50	27	40	.30
81.7	96.3	128	48	+13	591	75	28	47	.42
70.5	79.3	116	48	+26	497	70	51	59	.93
85.0	90.5	124	36	+42	580	45	32	35	.33
85.3	89.3	152	84	—12	518	55	31	35	.36
83.4	94.0	132	56	—47	512	75	25	38	.32
89.7	106.0	140	52	+20	621	40	29	62	.46
76.7	80.0	120	52	+ 4	490	45	28	31	.21
67.0	73.3	116	60	—27	406	85	46	52	.79
80.7	93.0	144	64	+80	623	50	45	59	.83
76.0	90.7	128	48	+16	543	90	29	37	.41
73.7	88.3	124	36	+ 9	525	72	33	53	.64
103.3	104.7	140	32	+ 8	639	90	28	37	.43
84.7	105.3	148	52	+16	646	40	36	29	.29
61.0	74.4	116	52	+27	475	60	45	56	.82
72.7	92.4	136	56	+12	558	65	50	70	1.12
98.3	112.3	140	36	+19	680	80	25	42	.36
75.3	77.3	128	56	+21	486	75	31	35	.39
86.7	94.7	124	36	+12	592	35	40	41	.42
81.0	94.7	128	48	+ 4	571	70	28	46	.38
96.3	112.7	132	28	+38	698	68	31	31	.28
77.7	88.0	128	56	—21	492	72	28	28	.29
93.0	117.3	152	44	+33	722	60	20	39	.21
72.3	95.7	120	40	—30	538	62	50	61	.88
93.7	104.7	144	56	+ 7	623	40	29	49	.38
88.0	108.7	124	32	—13	627	58	25	31	.22
93.0	106.3	140	48	—+ 0	625	75	36	43	.48
80.0	96.7	118	44	+32	587	72	31	50	.46
70.3	79.7	116	48	+23	489	70	30	33	.34
77.3	85.7	128	60	— 9	499	55	26	40	.29
62.7	80.1	108	48	—60	427	85	44	45	.69
80.3	97.3	144	60	+31	592	80	23	35	.28
64.0	70.3	120	60	— 3	429	60	25	41	.31
79.0	96.7	128	40	+35	594	72	64	74	1.43
98.7	100.0	156	64	+12	627	50	35	50	.55
74.7	80.0	152	84	+49	531	85	31	54	.58
84.5	85.0	132	64	—11	506	55	39	37	.42
80.1	92.0	116	32	+27	557	75	22	35	.27
88.3	98.7	128	36	+35	617	60	27	35	.30
91.7	110.5	144	40	+48	708	60	29	40	.40
81.3	104.0	144	68	+29	571	55	37	51	.58
86.7	84.3	132	60	+12	515	75	38	54	.80
83.2	95.2	132.8	50.8	+8.5	571.4	66.6	33.8	44.8	0.51
Mean Averages		*Average*	*Average*	*Average*	*Average*	*Average*	*Average*	*Average*	*Average*

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Skin Diseases of a School Clinic.

By Dr. Henry Duguid.

Throughout the year I have kept a record of the diagnosis of every skin case seen by me at the New Islington School Clinic. At the same time I marked the child's medical card to avoid counting it again, so that each child is counted once only unless it had been discharged and attended again for another condition. It is necessary to state that the children attending this clinic come mostly from poor class homes, and that my figures must not be thought to be applicable to any school clinic, but they probably are more or less typical of any clinic situated in a poor class congested area of a big industrial town. It will be seen that the pyodermias (the first 7 on the list) number 1,414, or 75 per cent. of the skin diseases, or, if one includes burns, scalds and skin injuries, then 67 per cent. of the total. These are notoriously associated with uncleanliness and overcrowding and would certainly be relatively much fewer in a clinic situated amid favourable surroundings.

Skin Diseases and Defects.	No. of Cases.
Impetigo Contagiosa of Tilbury Fox	415
Follicular Impetigo of Bockhart	43
Impetigo Simplex	804
Whitlow	49
Boils	91
Abscess	11
Carbuncle	1
Intertrigo	39
Ringworm Scalp	25
Ringworm elsewhere	51
Scabies	38
Alopoecia areata	21
Molluscum Contagiosum	13
Verruca Vulgaris and Verruca Plana Juvenilis	52
Lupus Vulgaris	9
Lupus Erythematosus	1
Pityriasis Alba Facialis	104
Pityriasis Capitis	10
Pityriasis (Seborrhoea Sicca) Corporis	5
Pityriasis Rosea	3
Ichthyosis	9
Keratosis Palmaris et Plantaris	2
Keratosis Pilaris	4

Skin Diseases and Defects.	No. of Cases.
Psoriasis	11
Urticaria	3
Lichen Urticatus	3
Lichen planus	2
Herpes Simplex (febrilis)	15
Herpes Zoster	6
Pompholyx (including Cheiropompholyx)	12
Eczema	16
Prurigo	1
Acne Vulgaris	1
Erythema pernio (chilblains)	12
Erythema nodosum	1
Purpura Haemorrhagica	1
Erythema ab igne	1
In addition there were Burns and Scalds	66
Wounds and other skin injuries	154

Impetigo.—It is necessary to explain my classification of impetigo as most books on dermatology recognise only two forms—the impetigo contagiosa of Tilbury Fox and the follicular impetigo of Bockhardt. I have ventured to name a third group, the largest of all, impetigo simplex, which class would, I think, ordinarily be included amongst the impetigo contagiosa. Both impetigo contagiosa and impetigo simplex are pyococcic infections of the skin and both form scabs, but there is a marked difference in the characters and course of the lesions in the two cases. The type specially called "contagiosa" is an acute, virulent, quickly spreading disease very often arising spontaneously, and so highly inoculable that not only does it rapidly spread on the affected child but it almost certainly will attack other children living in close contact with it. The other variety—simplex—although probably never entirely non-contagious, is at any rate only slightly so, and communicability is not its distinguishing feature. Simple impetigo arises chiefly if not only where there has been some break in the skin due to a scratch or other injury. It is much less acute than the contagiosa, there is not the same tendency to form vesicles, and in consequence less exudate, and it has only a slight tendency to inoculate fresh parts. The crusts or scabs are different in the two conditions. In the contagiosa, owing to vesicles or blebs being a prominent feature and the resulting abundant exudate, the scabs are thick, heaped up or raised looking, and appear as though they were artificially stuck on; in the simple type the scabs are thinner, flatter, not raised up, and have not the characteristic stuck-on appearance. Impetigo contagiosa nearly always

attacks the face or scalp, but impetigo simplex, although frequently on the face and scalp, is just as often on the limbs. Simple impetigo ("impeto," I attack or assault) seems to me a sufficiently descriptive name to apply to the milder condition, and I think it is misleading to specially characterise it as "contagiosa." The differences in the two conditions are so great that they cannot be satisfactorily combined and described by a common name.

Many pruriginous skin diseases, *e.g.*, scabies, lichen urticatus, tend to become impetiginised through scratching and secondary infection with streptococci and staphylococci. I have not included amongst the impetigos such cases of secondary impetiginisation as this is merely a complication of the pre-existing disease and not a disease in itself.

Impetigo Contagiosa.—This begins, as I have already said, nearly always on the face or scalp; about two-thirds of my cases began on the face, generally about the chin or near the mouth, and about one-third commenced on the scalp, but it sometimes later became inoculated on other parts of the body. The scabs were usually not the typical yellow or amber colour, but more often were dirty grey or dirty brown due to the presence of dirt. The well-known yellowish colour was seen only where the scabs were very recently formed or where they had been covered by a dressing. In two children the disease spread to the legs, forming reddish brown scabs with ulceration (ecthyma) which was extremely obstinate to clear up. In a girl of 12 with severe impetigo on the face it spread to the red lips, which became swollen and painful with maceration and crusting—a severe case of perlèche. It seems very rarely to attack the red lips, and this was the only striking case of it I had. A milder form of La Perlèche, consisting of fissures at the labial commissures with a tendency to bleed on opening the mouth, and frequently with a small crust or scab on the adjoining skin, occurred not uncommonly, sometimes with and sometimes without impetigo elsewhere on the face.

Most of the cases were of the common type—impetigo contagiosa vulgaris—but there were about 50 cases of the annular or circinate variety, all on the face and very contagious. Some of these cases resembled ringworm, but it could generally be readily distinguished by the vesicles at the spreading margin, the large amount of exudate, and by the lesions spreading much more rapidly both peripherally and numerically. There were also a few cases of the bullous variety—about 20; they were generally associated with vulgaris lesions on the face or scalp.

Apparently all types of children are readily susceptible to impetigo contagiosa. Many of the affected children were below par in health and physique, but there were also many robust children affected. It is

noticeable, however, that the skin of children is much more vulnerable to attack than the skin of adults. Although there were several instances of it running through all the children of a family, I found on enquiry that it was rare for it to spread to an adult living in the same house. The parents in particular seemed to keep clear of it, but occasionally it attacked a brother or sister in their late teens and who had left school. I do not think this immunity of the parents can be entirely explained by special precautions on their part. It is probably due to their greater resistance to the pyococci, either a true immunity or simply greater local resistance in the skin.

Intertrigo.—This is not usually considered a disease *per se*, but I have given it as a separate class because it occurred without any definite skin disease elsewhere, and in such cases it is not always easy or even possible to tell what the exact nature of the condition is. Probably in most cases it was impetiginous, the absence of scabbing being due to the contact of the skin surfaces which prevented drying of the exudate; even so, I think it is sufficiently distinctive to be mentioned separately. Intertrigo is generally said to be due to mechanical friction of the two opposed surfaces of skin, the accumulation and decomposition of secretion and the moisture of the parts being predisposing factors. As 37 out of the 39 cases were retroauricular—the remaining two being between the toes—mechanical friction can play little part here. It was not met with on other sites which are usually affected in adults. The explanation is probably to be found in the habits of the child. Most children indulge in very rough play, and small tears or cracks are sometimes formed behind the ears. These fissures will almost certainly become infected with pyococci since any break in the skin is most apt to become infected amongst children of this class. Possibly lack of cleanliness is sufficient in certain cases to lower the resistance of the skin in a place where owing to the natural folds of the skin the resistance is normally low and enables the pyococci to break through the defence. In at least eight of the intertrigos it did not appear to be impetiginous. These were extremely obstinate cases ,and had improved and recurred alternately for years without becoming absolutely well. There must in these cases be some underlying condition keeping it up. Several of them had a slightly dry seborrhœic condition of the skin with brownish scaly patches in the scalp, so that they might more properly be classed as seborrhœic eczema. Six of this last group had definite signs of metabolic disturbance such as dyspeptic tongues, irregular bowels, defective nutrition, etc.

Verruca Vulgaris.—Warts are extremely common in children, and the number 52 represents only those children who attended the clinic for treatment to their warts. Sometimes the warts were inflamed

and painful, or owing to their number, size or position they had beeome unsightly, and when on the hands and fingers got in the way. I always found that the eommon warts appeared only on exposed parts—the face, hands, wrists, and the forearms and knees where habitually uneovered. There was one possible exception, that of a girl who had a common wart on the ealf, but her mother stated that she sometimes wore short stockings which did not reach as high as the wart.

It is generally believed that warts are caused by a micro-organism, but one would expeet to find them on eovered parts too as in the ease of molluscum contagiosum. It seems likely that some physieal or atmospheric irritant (possibly light) is also neeessary for their formation. The skin of children is more sensitive to light than that of adults, due in part to the increased development of the sebaeeous and sweat glands at puberty and the resulting increased oily state of the skin which has a protective aetion against light. At any rate, it seems remarkable that they should form only on exposed parts, and also that they generally disappear about puberty.

In all cases of plane juvenile warts I found also one or more eommon warts. The plane warts were often about the mouth, and probably they had been spread through lieking a common wart. I have seen it stated (and it is sometimes believed by parents) that persistent licking of a wart will cause it to disappear owing to the solvent action of the ptyalin of the saliva, but as the plane juvenile warts were commonly present close to the mouth, and in several eases aetually on the vermilion of the lips, it is diffieult to understand how the saliva can have any curative effect at all. Warts often disappear without any treatment, and this probably gives rise to the belief.

Four children attended the clinic suffering from verrueæ plantares. These are very painful and troublesome warts on the soles of the feet. They are flat, and projeet very little if at all from the surface, so that unless the feet are clean and the warts earefully examined they are easily mistaken for corns. One of them I diagnosed at first as a corn, and the boy's father tried to pare it without success owing to bleeding. Later I examined it again and found it was an extremely painful and tender wart.

Pityriasis Alba Face.—This formed a fairly large class. Children are often sent to the clinic beeause it is mistaken for ringworm of the faee. Apart from this, however, it sometimes irritates and causes the ehild to rub and serateh, so that unless treated impetigo is apt to commenee.

The case of lupus erythematosus oeeurred in a delicate and nervous girl of 13 who had suffered with it for seven years. It formed the

typical butterfly pattern across the bridge of the nose and cheeks. Always best in winter when she enjoyed fairly good health, it was much worse in summer, when she also suffered with bilious turns. Wearing a red hat appeared to alleviate it in summer time.

Psoriasis.—Six of the eleven children had also definite disordered metabolism; three of these were in obviously bad health and were referred elsewhere for general and tonic treatment. The remaining five appeared to be in very good health and were physically average at least. These five varied in type from a golden-haired, blue-eyed boy of 9 to a girl of 13 whose hair and eyes were nearly black. There was no obvious focal sepsis in the tonsils of any of them, but those in bad health probably had septic or other abnormal absorption from the bowel. As a rule they are hardly suitable cases for treatment at a school clinic as they generally require internal treatment as well as external. Most of them had been to other places for treatment before coming to the clinic; they very naturally get disappointed when there is little improvement, and try a new place.

The case of acne vulgaris occurred on the face of a stout girl nearly 14 years of age.

Both cases of lichen planus were of the subacute localised variety; one occurred on the wrists and the other on the inside of the knee.

The erythema ab igne was on a boy who was referred to the clinic for an unusual mottled appearance of the fronts of his legs, due to sitting too close to the fire.

Lectures on Hygiene.

The School Medical Officer has acted as Lecturer in Hygiene to the students at the Municipal Day Training College and also as Medical Officer during the past year. Any student who has been ill has been submitted for medical examination, and a number of minor defects have been treated, including accidents. During the year 1927 the School Medical Officer gave 17 lectures on School Hygiene, Infectious Diseases, etc., etc.

Apart altogether from the information given in these lectures, the School Medical Officer considers that the value of meeting and instructing these intending teachers cannot be over-estimated. They have been informed of the work of the School Medical Service and the School Clinics in particular. They have visited School Clinics, and have been shown how the work is co-ordinated with the general scheme of education, and how it is necessary for the closest co-operation to exist between the teachers and the school doctor. As the School Medical Officer has undertaken this work for about twenty years, he has had ample opportunity of estimating its real value.

Medical Examination of Scholarship Candidates, College Students, etc., and other Miscellaneous Medical Examinations.

There is a considerable amount of medical work undertaken in this direction. The numbers medically examined and reported upon are as follows:—

Classification.	*Numbers examined.*
(*a*) Student teachers, pupil teachers, bursars, etc. ...	393
(*b*) Entrants to and leavers from the Municipal Day Training College	211
(*c*) Teachers from outside Colleges accepting appointment under the Manchester Education Committee	183
(*d*) Examinations in connection with other appointments of teachers and officials	26
(*e*) Miscellaneous examinations of teachers and other employees	150
	963

The work does not end with these examinations. In some cases minor defects have needed attention before the medical certificate could be issued, and these have entailed 197 re-inspections. Over 100 of the above required examination in regard to the provision of spectacles, and most of the work was undertaken by the School Medical Staff. Further, the amount of clerical work involved is considerable, and there is a complete medical history of those students commencing their careers as student teachers until they are finally examined as "leavers" from the Municipal Day Training College.

Summary of Work Done.

The following is a summary of the work of inspection and treatment accomplished by the staff of the School Medical Department during the year 1927:—

Children medically examined in school "routine" ...	39,276
Children examined as "specials" in schools and clinics	33,633
Re-inspections in schools and clinics	109,893
Number of examinations by the School Dentists ...	38,316
Number of treatments by the School Dentist	30,441
Number of attendances at the School Clinics	332,836
Number of inspections by Nurses in regard to uncleanliness	284,221
Number of home visits made by the School Nurses ...	7,089
Number of other inspections in school made by the School Nurses	6,207
Number of children inspected in connection with investigations into infectious disease outbreaks...	18,574

Conclusion.

The Scheme of Medical Inspection and Treatment continues to develop. The additional schemes of treatment which have been instituted during the last few years, together with the provision of Clinic Buildings specially designed and built for the purpose, have enabled the Staff to carry out the work in a much more efficient manner.

Satisfactory though the expansion and development of the School Medical Service in Manchester may be on general lines, there are several facts which your Medical Officer would emphasise as requiring to be kept in mind.

(1) Delicate children, *e.g.*, pre- or latent Tuberculosis, Malnutrition, Debility, Anaemia, etc. Such children require provision in the form of either Day or Residential Open Air Schools. 354 Children of this type have been dealt with at our Residential Schools this year, but 1,770 attend the ordinary schools, and the actual number must be considerably larger on account of absence at times of inspection. The urgency for the provision of a number of Day Open Air Schools is obvious. The provision of one capable of accommodating about 250 children is now being proceeded with. At the same time the places available for residential cases are quite inadequate for the numbers of children known.

(2) Crippled children (other than those with active tuberculous disease) *i.e.*, children suffering from paralysis, etc., and including those with severe Heart Disease. Although 269 of these children have been dealt with at Swinton House and the Lancasterian School, there are 605 attending the ordinary schools and 222 at no school or institution. The Orthopaedic Clinic is steadily producing numbers of such children suitable for the Lancasterian School or Swinton House, and for whom there are no places. As these cases begin usually before school age the total number of children requiring treatment must be much larger and any Orthopaedic Scheme to be of real value will require to make provision for children below school age. The provision of a suitable building for an Orthopaedic Clinic is urgent, and a scheme for treatment will mean increased accommodation for both day and residential cases. A number of the Heart Cases would be suitable for a Day Open Air School.

(3) Infectious pulmonary and glandular Tuberculosis. Provision is being made for such cases at Abergele, but meanwhile 368 are known who are at no school or institution.

(4) Non-infectious but active pulmonary and glandular Tuberculosis. Some 14 such cases are dealt with at Summerseat and elsewhere, but there are 194 known and for whom provision is desirable.

(5) Active non-pulmonary Tuberculosis ; 145 cases have been dealt with at Swinton House, Lancasterian, Delamere, Booth Hall, etc., but it is known that there are 371 more in attendance at the ordinary schools and a further 448 at no school or institution. Of these, 77 of the cases dealt with are tubercular cripples, and of the 448 not at school or institution, 159 are tubercular cripples.

(6) Mentally Defective. There have been during the year 625 of these children attending the Special Schools, but there are 448 certified cases still in attendance in the ordinary schools and a further 619 who have not yet been certified, and 174 who are deformed cases on probation. It is therefore evident that, whatever changes in policy the Board may adopt with regard to the education of these children, there is still great need for Special Schools to serve the districts in which there is no provision of this nature made.

(7) Partially Blind. Suitable for training in a school or class for the partially blind. There is no special provision for these children, of whom 171 are scattered over the city in attendance at the ordinary schools.

(8) The Dental Scheme as yet only covers about one-sixth of the city.

Whilst these are the facts with regard to exceptional children in the Manchester Area, the programmes for future extensions contain provision for an Open Air School near Heaton Park and a Day Special School in Cheetham Area, in the immediate future, and it must be remembered that the programmes for the development and extension of educational facilities for normal children, replacement of old schools and provision for Higher Education, are heavy. Expenditure on Exceptional Children, however, is a sound investment, producing a very high return in the form of increased physical efficiency in addition to the educational results obtained with children, who, without special provision, are deprived of any chance of lessening or eliminating their handicap in competition with the normal child.

A. BROWN RITCHIE,

School Medical Officer.

TABLE I.

RETURN OF MEDICAL INSPECTIONS.

A.—ROUTINE MEDICAL INSPECTIONS.

Number of Code Group Inspections—		
Entrants	14,381	
Intermediates	8,853	
Leavers	9,269	
Total		32,503
Number of other Routine Inspections	3,072	
Number of Secondary School Students inspected	1,537	
Number of Day Continuation School Students inspected	1,086	
Number of Nursery School Children inspected	1,078	
Total		6,773

B.—OTHER INSPECTIONS.

Number of Special Inspections	33,633	
Number of Re-Inspections	109,893	
Total		143,526
GRAND TOTAL		182,802

TABLE II.

A.—RETURN OF DEFECTS FOUND BY MEDICAL INSPECTION IN THE YEAR ENDED DECEMBER 31ST, 1927.

ELEMENTARY SCHOOLS.

DEFECT OR DISEASE.	ROUTINE. *Referred for Treatment.*	ROUTINE. *Referred for Observation.*	SPECIALS *Referred for Treatment.*	SPECIALS *Referred for Observation.*
Malnutrition	278	116	53	20
SKIN:—				
Ringworm: Scalp	48	.....	232	.....
Body	19	.....	312	.....
Scabies	38	.....	232	.....
Impetigo	387	.....	4,735	.....
Other Diseases (non-tubercular)	1,179	47	3,557	6
EYE:—				
Blepharitis	298	19	817	4
Conjunctivitis	162	2	2,130	1
Keratitis	13	.....	76	1
Corneal Opacities	32	34	59	3
Defective Vision (excluding Squint)	3,027	1,124	1,865	114
Squint	556	56	265	10
Other conditions	95	13	820	4

TABLE II.—*continued.*

DEFECT OR DISEASE.	ROUTINE. *Referred for* Treatment.	ROUTINE. *Referred for* Observation.	SPECIALS. *Referred for* Treatment.	SPECIALS. *Referred for* Observation.
EAR:—				
Defective Hearing	269	79	358	14
Otitis Media	554	39	611	10
Other Ear Diseases	566	75	1,535	3
NOSE AND THROAT:—				
Enlarged Tonsils only	459	893	194	79
Adenoids only	294	167	124	25
Enlarged Tonsils and Adenoids	468	154	257	13
Other conditions	513	253	1,599	36
Enlarged Cervical Glands (non-tubercular)	112	130	330	13
Defective Speech	45	104	28	19
HEART AND CIRCULATION:—				
Heart Disease: Organic	149	291	63	26
Functional	53	406	46	50
Anaemia	387	152	210	25
LUNGS:—				
Bronchitis	726	260	218	47
Other non-tuberculous diseases	45	227	60	4
TUBERCULOSIS:—				
Pulmonary: Definite	11	.....	7	.....
Suspected	59	14	34	3
Non-Pulmonary: Glands	42	2	22	.....
Spine	3	.....	2	.....
Hip	5	1	2	.....
Other Bones and Joints	11	1	9	2
Skin	10	2	9	1
Other forms	12	4	17	1
NERVOUS SYSTEM:—				
Epilepsy	24	4	9	.....
Chorea	52	4	54	4
Other conditions	62	36	95	3
DEFORMITIES:—				
Rickets	138	58	50	10
Spinal Curvature	57	43	11	3
Other forms	138	74	105	17
Other defects and diseases	1,481	668	12,331	133

TABLE II.b.

A.—Return of Defects found by Medical Inspection in the Year ended December 31st, 1927.

SECONDARY SCHOOLS.

Number Examined .... Boys 713. Girls 824

Defect or Disease.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
Malnutrition	11	13
Skin:—		
Ringworm: Head	1	.....
Body	1	.....
Scabies	2	.....
Impetigo	1	.....
Other Diseases (non-tubercular)	31	1
Eye:—		
Blepharitis	9	3
Conjunctivitis	6	.....
Keratitis	.....	.....
Corneal Opacities	.....	3
Defective Vision (excluding Squint)	158	74
Squint	.....	2
Other conditions	5	1
Ear:—		
Defective Hearing	13	7
Otitis Media	15	6
Other Ear Diseases	15	6
Nose and Throat:—		
Enlarged Tonsils only	11	43
Adenoids only	2	6
Enlarged Tonsils and Adenoids	3	15
Other conditions	39	12
Enlarged Cervical Glands (non-tubercular)	1	5
Defective Speech	.....	6

TABLE II.b—*continued.*

DEFECT OR DISEASE.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
HEART AND CIRCULATION:—		
Heart Disease: Organic	9	13
Functional	3	15
Anaemia	13	2
LUNGS:—		
Bronchitis	9	6
Other non-tuberculous diseases	12	4
TUBERCULOSIS:—		
Pulmonary : Definite	.....	.....
Suspected	.....	.....
Non-Pulmonary : Glands	1	.....
Spine	.....	.....
Hip	.....	.....
Other Bones and Joints	.....	.....
Skin	.....	.....
Other forms	.....	.....
NERVOUS SYSTEM:—		
Epilepsy	.....	1
Chorea	2	2
Other conditions	2	4
DEFORMITIES:—		
Rickets	.....	1
Spinal Curvature	15	4
Other forms	25	8
Other defects and diseases	27	43

Number of individual students having defects which required treatment or to be kept under observation 362

TABLE II.c.

A.—Return of Defects found by Medical Inspection in the Year ended December 31st, 1927.

DAY CONTINUATION SCHOOLS.

Number Examined .... Boys 860. Girls 226.

Defect or Disease.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
Malnutrition	6	6
Skin:—		
Ringworm: Head	.....	.....
Body	.....	.....
Scabies	.....	.....
Impetigo	.....	.....
Other Diseases (non-tubercular)	16	.....
Eye:—		
Blepharitis	4	1
Conjunctivitis	2	1
Keratitis	1	.....
Corneal Opacities	.....	1
Defective Vision (excluding Squint)	66	49
Squint	1	1
Other conditions	1	2
Ear:—		
Defective Hearing	24	6
Otitis Media	21	2
Other Ear Diseases	5	3
Nose and Throat:—		
Enlarged Tonsils only	7	9
Adenoids only	1	.....
Enlarged Tonsils and Adenoids	4	3
Other conditions	8	4
Enlarged Cervical Glands (non-tubercular)	3	.....
Defective Speech	.....	1

TABLE II.c—*continued.*

DEFECT OR DISEASE.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
HEART AND CIRCULATION:—		
Heart Disease: Organic	5	8
Functional	2	7
Anaemia	7	.....
LUNGS:—		
Bronchitis	1	3
Other non-tubercular diseases	6	1
TUBERCULOSIS:—		
Pulmonary : Definite	.....	.....
Suspected	.....	.....
Non-Pulmonary : Glands	.....	.....
Spine	.....	.....
Hip	.....	1
Other Bones and Joints	.....	.....
Skin	.....	.....
Other forms	.....	.....
NERVOUS SYSTEM:—		
Epilepsy	.....	.....
Chorea	.....	1
Other conditions	.....	1
DEFORMITIES:—		
Rickets	.....	1
Spinal Curvature	9	12
Other forms	32	17
Other defects and diseases	39	15
Number of individual students having defects which required treatment or to be kept under observation	.....	215

TABLE II.d.

A.—Return of Defects found by Medical Inspection in the Year ended December 31st, 1927.

NURSERY SCHOOLS AND CLASSES.

Number Examined 1,078

Defect or Disease.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
Malnutrition	8	2
Skin:—		
Ringworm : Head	1	.....
Body	.....	.....
Scabies	3	.....
Impetigo	20	.....
Other diseases (non-tubercular)	45	.....
Eye:—		
Blepharitis	15	.....
Conjunctivitis	8	1
Keratitis	2	.....
Corneal Opacities	1	.....
Defective Vision	12	1
Squint	23	1
Other conditions	3	1
Ear:—		
Defective Hearing	9	1
Otitis Media	16	1
Other Ear Diseases	33	4
Nose and Throat:—		
Enlarged Tonsils	11	28
Adenoids	17	11
Enlarged Tonsils and Adenoids	27	8
Other conditions	17	13
Enlarged Cervical Glands (non-tubercular).....	4	8
Defective Speech	.....	4

TABLE II.d—*continued.*

DEFECT OR DISEASE.	*No. referred for treatment.*	*No. requiring to be kept under observation but not referred for treatment.*
HEART AND CIRCULATION:—		
Heart Disease Organic	1	7
Functional	1	8
Anaemia	7	.....
LUNGS:—		
Bronchitis	26	9
Other non-tubercular diseases	.....	2
TUBERCULOSIS:—		
Pulmonary: Definite	1	.....
Suspected	3	.....
Non-Pulmonary: Glands	.....	.....
Spine	.....	.....
Hip	.....	.....
Other Bones and Joints	.....	1
Skin	.....	.....
Other forms	.....	.....
NERVOUS SYSTEM:—		
Epilepsy	.....	1
Chorea	.....	.....
Other conditions	4	2
DEFORMITIES:—		
Rickets	15	5
Spinal Curvature	.....	.....
Other forms	6	3
Other defects and diseases	42	11
Number of individual children having defects which required treatment		309

TABLE II.

B.—Number of Individual Children found at Routine Medical Inspection to require Treatment (excluding Uncleanliness and Dental Diseases).

	Number of Children inspected.	*Children found to require treatment.*	*Percentage of Children found to require treatment.*
Code Groups:—			
Entrants	14,381	3,901	27.1
Intermediates	8,853	2,935	33.2
Leavers	9,269	2,993	32.3
Total (Code Groups)	32,503	9,829	30.2
Other Routine Inspections	3,072	771	25.1
Secondary School Students	1,537	362	23.6
Day Continuation School Students	1,086	215	19.8
Nursery Schools and Classes	1,078	309	28.7

TABLE III.

RETURN OF ALL EXCEPTIONAL CHILDREN IN THE AREA.

	Boys.	*Girls.*	*Total.*
Blind (including partially blind):—			
(i.) Suitable for training in a School or Class for the totally blind.			
Attending Certified Schools or Classes for the blind	35	18	53
Attending Public Elementary Schools	.....	.....	.....
At other Institutions	.....	.....	.....
At no School or Institution	3	2	5
(ii.) Suitable for training in a School or Class for the partially blind.			
Attending Certified Schools or Classes for the blind	.....	.....	.....
Attending Public Elementary Schools	79	92	171
At other Institutions	.....	.....	.....
At no School or Institution	.....	.....	.....

TABLE III.—*continued.*

	Boys.	*Girls.*	*Total.*
DEAF (including deaf and dumb and partially deaf):—			
(i.) Suitable for training in a School or Class for the totally deaf or deaf and dumb.			
Attending Certified Schools or Classes for the deaf	44	29	73
Attending Public Elementary Schools	2	1	3
At other Institutions	.....	.....	.....
At no School or Institution	5	5	10
(ii.) Suitable for training in a School or Class for the partially deaf.			
Attending Certified Schools or Classes for the deaf	.....	.....	.....
Attending Public Elementary Schools	35	43	78
At other Institutions	.....	.....	.....
At no School or Institution	.....	.....	.....
MENTALLY DEFECTIVE:—			
Feeble-minded (cases not notifiable to the Local Authority).			
Attending Certified Schools for Mentally Defective Children	374	251	625
Attending Public Elementary Schools	247	201	448
At other Institutions	11	8	19
At no School or Institution	85	63	148
Notified to the Local Control Authority during the year.			
Feeble-minded	23	7	30
Imbeciles	27	17	44
Idiots	.....	.....	.....
EPILEPTICS:—			
Suffering from severe Epilepsy.			
Attending Certified Special Schools for Epileptics	37	30	67
In Institutions other than Certified Special Schools	2	1	3
Attending Public Elementary Schools	.....	.....	.....
At no School or Institution	39	35	74

TABLE III.—*continued.*

EPILEPTICS—*continued*—

	Boys.	*Girls.*	*Total.*
Suffering from Epilepsy which is not severe.			
Attending Public Elementary Schools	118	109	227
At no School or Institution	.....	.....	.....
PHYSICALLY DEFECTIVE:—			
Infectious Pulmonary and Glandular Tuberculosis.			
At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board	4	4	8
At other Institutions	8	8	16
At no School or Institution	194	174	368
Non-infectious but active Pulmonary and Glandular Tuberculosis.			
At Sanatoria or Sanatorium Schools approved by the Ministry of Health or the Board	20	14	34
At Certified Residential Open-Air Schools	.....	.....	.....
At Public Elementary Schools	97	97	194
At Certified Day and Open-Air Schools	.....	.....	.....
At no School or Institution	.....	.....	.....
Delicate Children, *e.g.*, pre- or latent Tuberculosis, Malnutrition, Debility, Anaemia, etc.			
At Certified Residential Open-Air Schools	175	179	354
At Certified Day Open-Air Schools	.....	.....	.....
At Public Elementary Schools	997	773	1770
At other Institutions	24	37	61
At no School or Institution	18	28	46
Active Non-Pulmonary Tuberculosis.			
At Sanatoria or Hospital Schools approved by the Ministry of Health or the Board	92	53	145
At Public Elementary Schools	221	150	371
At other Institutions	9	4	13
At no School or Institution	235	213	448

TABLE III—*continued.*

	Boys.	*Girls.*	*Total.*
CRIPPLED CHILDREN (other than those with active Tuberculous Disease), *e.g.*, Children suffering from Paralysis, etc., and including those with severe Heart Disease.			
At Certified Hospital Schools			
At Certified Residential Cripple Schools.....	69	52	121
At Certified Day Cripple Schools	80	68	148
At Public Elementary Schools	304	301	605
At other Institutions	6	11	17
At no School or Institution	100	122	222

TABLE IV.

RETURN OF DEFECTS TREATED DURING THE YEAR ENDED DECEMBER 31ST, 1927.

GROUP I.—MINOR AILMENTS (EXCLUDING UNCLEANLINESS).

DISEASE OR DEFECT.	*Number of Defects treated or under treatment during the year.*		
	Under Local Education Authority's Scheme.	*Otherwise.*	*Total.*
SKIN:—			
Ringworm: Scalp	382	41	423
Body	366	44	410
Scabies	498	23	521
Impetigo	5,613	60	5,673
Other Skin Disease	4,224	757	4,981
Minor Eye Defects	4,774	430	5,204
Minor Ear Defects	4,423	832	5,255
Miscellaneous	12,344	197	12,541
Total	32,624	2,384	35,008

TABLE IV.

GROUP II.—DEFECTIVE VISION AND SQUINT (EXCLUDING MINOR EYE DEFECTS TREATED AS MINOR AILMENTS, GROUP I.).

NUMBER OF DEFECTS DEALT WITH.

	Under the Authority's scheme.	*Submitted to refraction by private practitioner or at hospital apart from the Authority's scheme.*	*Otherwise.*	*Total.*
Errors of refraction (including squint)	8,372	44	13	8,429
Other defect or disease of the eyes (excluding those recorded in Group I.)	.....	.....	.....	.....
Total.....	8,372	44	13	8,429

Total number of children for whom spectacles were prescribed:—

(*a*) Under the Authority's Scheme 5,154
(*b*) Otherwise 28

Total number of children who obtained or received spectacles:—

(*a*) Under the Authority's Scheme 5,313
(*b*) Otherwise 33

TABLE IV.

GROUP III.—TREATMENT OF DEFECTS OF NOSE AND THROAT.

Received Operative Treatment.

Under Local Education Authority's Scheme: Clinic.	*By Private Practitioner or Hospital.*	*Total*	*Received other forms of Treatment.*	*Total Number Treated.*
881	299	1,180	3,889	5,069

Group IV.—Dental Defects.

1. Number of Children who were:—

(*a*) Inspected by the Dentist—

Routine Age Groups.

Aged 5	3,028
6	3,118
7	3,557
8	2,675
9	2,415
10	2,601
11	2,912
12	2,630
13	2,278
14	625
Total	25,839
Specials	12,477
Grand Total	38,316

(*b*) Found to require treatment	30,932
(*c*) Actually treated	21,132
(*d*) Re-treated during the year as a result of periodical examination	5,127

2. Half-days devoted to:—

Inspection	232
Treatment	2,103
Total	2,335

3. Attendances made by children for treatment:—

Total	30,441

4. Fillings:—

Permanent Teeth	3,691
Temporary Teeth	160
Total	3,851

GROUP IV.—*continued.*

5. Extractions:—

Permanent Teeth	4,589
Temporary Teeth	29,675
Total	34,264

6. Administrations of general anaesthetics for extractions .....

7. Other Operations:—

Permanent Teeth	2,613
Temporary Teeth	378
Total	2,991

GROUP V.—UNCLEANLINESS AND VERMINOUS CONDITIONS.

(1) Average number of visits per school made during the year by the School Nurses—8.

(2) Total number of examinations of children in the schools by School Nurses—284,221.

(3) Number of individual children found unclean—10,621.

(4) Number of children cleansed under arrangements made by the Local Education Authority—44 compulsorily and 57 voluntarily.

(5) Number of cases in which legal proceedings were taken:—

(*a*) Under Education Act, 1921—8.

(*b*) Under School Attendance Bye-Laws—2.

CHART SHEWING THE GROWTH OF CLINIC TREATMENT IN MANCHESTER.

EYE DISEASE

EAR DISEASE AND DEFECTIVE HEARING

TEETH

SKIN

VISION

MISCELLANEOUS

64,000
62,000
60,000
58,000
56,000
54,000
52,000
50,000
48,000
46,000
44,000
42,000
40,000
38,000
36,000
34,000
32,000
30,000
28,000
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

1915
1916
1917
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927